Amateur Radio

August 1996
Volume 64 No 8

WIRELESS INSTITUTE OF AUSTRALIA

Journal of the Wireless Institute of Australia

Full of the latest amateur radio news, information and technical articles including...

- **Ron Fisher VK3OM's in-depth review of the all-new Yaesu FT-1000MP all mode HF transceiver**
- **VHF guru Emil Pocock W3EP's explanation of long-distance VHF ducting opportunities from Australia**
- **Felix Scerri VK4FUQ's design for an optimised sloper for 80 metres using an elevated radial**

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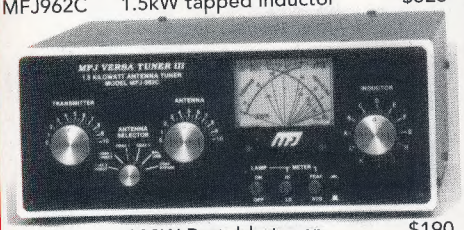

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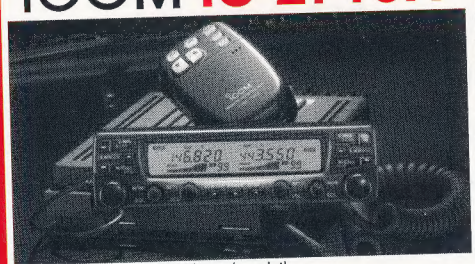

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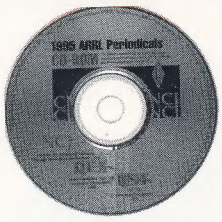

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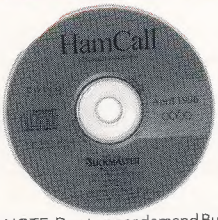

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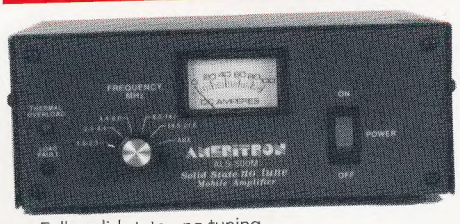

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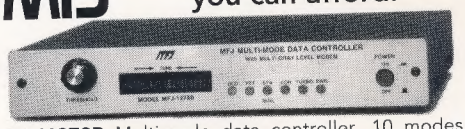

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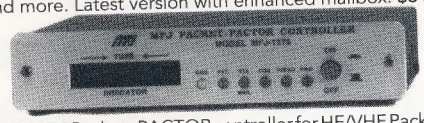

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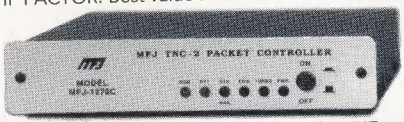

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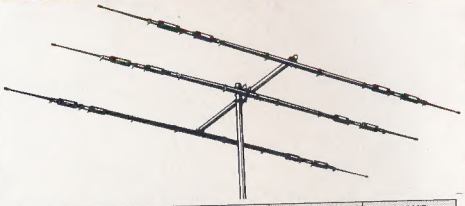

Model	A4S	A3S	A3WS
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Number of elements	4	3	3
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Front to back ratio, dB	16	14	14
Power, watts PEP	2000	2000	2000
Boom length, metres	5.48	4.27	4.27
Longest element, mtrs	9.75	8.45	7.66
Turning radius, mtrs	5.49	4.72	4.4
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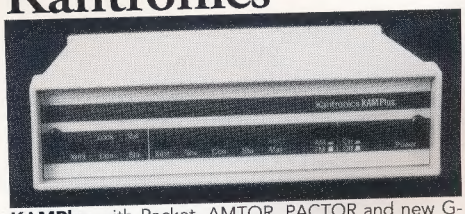

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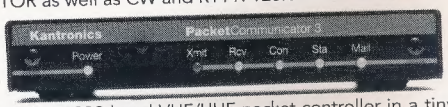

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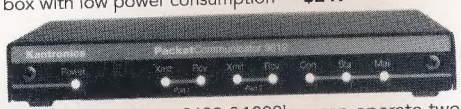

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Cover

The exciting new HF transceiver from Yaesu, the FT-1000MP. A full equipment review commences on page 7 of this issue.

BACK ISSUES

Available, only until stocks are exhausted, at $4.00 each (including postage within Australia) to members.

PHOTOSTAT COPIES

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus $2.00 for each additional issue in which the article appears).

The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training,intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

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Founded 1910

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Editor's Comment

On Safari Again

Regular readers of this little blurb, usually on page 2, will remember that your Editor and his XYL Margaret usually seem to set off somewhere north and warmer at about this time of year. The incentive is even stronger this winter; the Melbourne forecast as I write on 23 June is for four days of showers and maximum temperatures of about 14 degrees!

We also have another incentive. If you read my editorial for last November (Springs and Timing) you will remember that we set out to enjoy the warm artesian waters of Dalhousie Springs in far north VK5, and didn't make it! Our caravan broke a spring. This time, hopefully, we'll get there. But, beforehand, we propose to follow Burke and Wills via Tibooburra to the Cooper. Then to Innamincka, down the Strzelecki and up to Oodnadatta.

By the time this appears in print, we will be back home, but the August deadline is 8 July, on which day we might be somewhere near Marree. I hope to have heard from some of you on the Travellers' Net during the journey and maybe met a few of you here and there. We may even have a story worth writing by then!

Bill Rice VK3ABP
Editor

CONTRIBUTIONS TO *AMATEUR RADIO*

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. *"How to Write for Amateur Radio"* was published in the August 1992 issue of *Amateur Radio*. A photocopy is available on receipt of a stamped, self addressed envelope.

■ WIA News

Roger Harrison VK2ZRH, Federal Media Liaison Officer

Minister Agrees to Meet With WIA About Licensing Submission

The Minister for Communications and the Arts, Senator Richard Alston, has agreed to meet with the WIA to discuss the Institute's submission on amateur radio licensing.

In March, the WIA Federal President, Neil Penfold VK6NE, wrote to the new Minister for Communications and the Arts, Senator Richard Alston, seeking a meeting at the earliest available opportunity, to establish a relationship, to determine the Government's position and to outline the main thrust of the submission and how the Amateur Radio Service in Australia would be better licensed at lower cost to the Government.

He reminded the Minister that a copy of the exposure draft had been sent to him in February and that last year Senator Alston wrote to the then-WIA Vice President, Roger Harrison VK2ZRH, and had issued a press release supporting objections to the proposed licence fees increase and acknowledging that radio amateurs were of value to the community.

In his letter to the minister, Neil Penfold concluded with: *"Once the consultative process within the amateur radio community concludes and our final submission is completed, we will be seeking a further meeting to present it, later in the year."*

The Minister replied, in a letter dated 18 June, agreeing to a meeting later in the year. Senator Alston said: *"In the circumstances, and given my other commitments at this time, it would be preferable to meet later in the year when the consultative process within the amateur radio community has concluded and the WIA submission is finalised."*

The Minister concluded with: *"I look forward to receiving the submission."*

Neither the Minister, nor his advisers, have set for the WIA a prescription for the form or the length of the submission on amateur radio licensing.

Collation and consideration of comment received by the WIA is presently being carried out, with drafting of the final submission for consideration by the Divisions and Federal Council to be completed by October when the WIA Federal Council next meets. The WIA has obtained copies of a variety of submissions to different Ministers, parliamentary committees and inquiries presented by a number of lobby groups and representative associations over the past few years, including submissions made as recently as June. These are additional to examples previously held by the WIA or obtained last year and used in the course of developing the Exposure Draft on amateur licensing.

It is intended to present the WIA's completed submission on amateur licensing to Senator Alston in November.

Winner Drawn for the 1995-96 Membership Campaign

The prize winner in the WIA's 1995-96 Membership Recruitment and Retention Campaign was drawn on Tuesday, 2 July, by the managing director of the prize sponsor, Icom Australia, Mr Kiyoshi Fukushima VK3BZX.

The lucky winner of the Icom IC-706 transceiver is George Bromley VK1KGJ, a member of the ACT Division of the WIA. George is 74 years of age, has been a member of the Institute since 1979, and his only HF rig is an ageing "classic" transceiver, which "no longer works as well as it once did," he said.

The prize-drawing ceremony was held at a meeting of the Moorabbin and District Radio Club in Victoria, before an audience of some 50 members. The Icom IC-706 rig was presented to George VK1KGJ at the ACT Division meeting in late July.

The WIA congratulates Mr Bromley and extends grateful thanks to Icom Australia for their support for the 1995-96 Membership Campaign in donating the Icom IC-706 transceiver.

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Tariffs: President Calls for Letter Campaign to Parliamentarians

With the passage of new Customs legislation in late June which applies a duty of 3% to consumer and other goods, imported amateur radio equipment which was previously exempt will cost more from 15 July.

The WIA Federal President, Neil Penfold VK6NE, has written on behalf of the Institute to the Minister responsible for Customs, Geoff Prosser, and the Shadow Minister, Senator Chris Schacht, protesting the imposition of this new duty and has called on WIA members and other amateurs to write to parliamentarians and protest about it also.

The original Tariff Concession Orders (TCOs) applying to amateur radio equipment were arranged in conjunction with the WIA and have been operating since at least 1988. The WIA provides a service to importers to certify that equipment intended for import under the TCOs meets the necessary Customs requirements.

From information obtained by the WIA, applicable TCOs include TC 8609802, for transmitters and transceivers covering the 1.8 MHz through 1260 MHz bands, TC 9510289, for transmitters or transceivers covering the 1.8 MHz through 2400 MHz bands, TC 8533720 for RF linear power amplifiers, and TC 8534864, for RF preamplifiers.

The WIA Federal President, Neil Penfold VK6NE, wrote in May to the Minister for Industry, Science and Tourism, John Moore, who earlier announced the foreshadowed changes to tariff legislation. The President sought clarification of the position regarding amateur radio equipment and the announced tariff concession changes, and argued that the duty concession on amateur radio equipment was of considerable value to the amateur radio community while revenue foregone in maintaining the duty-free TCOs was comparatively small.

The Institute had received no reply by the second week in July.

In his two-page letter, the President outlined the ways in which radio amateurs contribute to the community, arguing that: *"Radio amateurs are . . . of definite value to the Australian community and the re-application of tariffs to imported amateur radio transmitting equipment would strike at the amenity of Australia's radio amateurs and their value to the community, and would represent a tax on knowledge gained through self-education.*

The amateur's common interest with all other amateurs in the world is . . . interest in the radio art, and by . . . intercommunication, knowledge is exchanged and expanded. The knowledge and the experience of communications, and the existence of the equipment that the amateur uses, provide a valuable resource that in many countries cannot be found in any other service."

WIA President Neil Penfold, in calling for amateurs to write letters of

TARIFFS: PROTEST TO PARLIAMENTARIANS

Write to your local member, the Minister, Shadow Minister and your state's senators, protesting the imposition of the new 3% duty on imported amateur equipment. Be forceful, but *be polite.* You might include some or all of the following points in your letter, in any order you wish, or in support of the points you personally choose to make.

- Commercially manufactured amateur radio transmitting equipment has been imported into Australia under tariff concession orders for many years. Prescribed equipment is not manufactured here so there is no local industry to protect. Other countries have similar tariff conditions.
- Amateur radio is formally recognised by the International Telecommunications service, pursued by people who have an interest in communications solely as a personal aim and without pecuniary interest. Self-education in communications techniques and techniques and technology is fundamental to amateur radio, providing a basic education in communications for many who would not otherwise acquire that knowledge.
- The basic desire to study radio communications techniques with the opportunity for practical applications leads to: (i) the acquisition of experience and skill in communications techniques and operating; (ii) interchange of information with others having similar interests; (iii) furtherance of the unique ability of the radio amateur to promote international goodwill; (iv) contribution to scientific research by participation in programs organised on a national or international basis, and (v) participation in communications systems including emergency communications by both training and assistance when required.
- The most important features of the Amateur Service are:

(1) it makes unique provision for advancing an individual's skills in both the technical and operating phases of the art, thus helping to provide a reservoir in the community of trained operators, technicians and electronics experts. It also provides an avenue for further investigation for those already in these fields;

(2) it has a unique ability to enhance international goodwill;

(3) it is a voluntary, non-commercial service.

Write to:

The Minister for Small Business and Consumer Affairs and Minister Responsible for Customs
The Hon. Geoff Prosser MP
23 Spencer St
BUNBURY WA 6230

The Shadow Minister for Small Business, and Consumer Affairs and Customs
Senator Chris Schacht
Shop 2,
59 Main North Rd
MEDINDIE GARDENS SA 5081

The address of your local member and state's senators can be obtained from any office of the Australian Electoral Commission in your state.

protest to parliamentarians, suggests writing to not only your local member, but also to the Minister responsible for Customs, Geoff Prosser, the Shadow Minister, Senator Chris Schacht, the leader of the Democrats, Senator Cheryl Kernot, and your state's senators. The accompanying panel provides points you can include in your letter, where to find the address of your local member and state's senators, and where to write to the Minister and Shadow Minister.

This matter is important because amendments to the legislation passed by the Parliament on 28 June give the Minister discretionary powers which he may use to continue duty exemption for amateur radio equipment. Parliament is in recess until 20 August. The opposition and minor parties in the Senate were reported to have all described the new 3% tariff, as a tax by stealth by the government, and that it broke an election promise of no new taxes.

The WIA views the imposition of this new tax, coming on top of last year's rise in amateur licence fees, as another unwarranted burden on a service which is of value to the community.

AX Prefix for the Year 2000

The "Sydney 2000 Olympics" special call sign, AX2OOO (Oh-Oh-Oh, not triple-zero), which has been granted to the Westlakes Amateur Radio Club in NSW, will now be able to be used from six months before the Olympics opening ceremony to one month after the closing ceremony, following successful negotiations between the WIA and the SMA in late June.

The SMA had previously told Westlakes that it could only be used for one month before and after the games.

In addition, the SMA Liaison Team negotiated permission for all Australian amateurs to use the AX prefix for the same period; that is, from six months before the games' opening ceremony, to one month after the closing ceremony.

Multi-year Licence Fees

A *WIA News* item circulated in May and published in the June issue of *Amateur Radio* magazine on fees for multi-year licences, was incorrect in that payment by instalment is not available to amateur licensees.

Multi-year amateur licence fees can only be paid up-front. Commercial and public sector licensees holding apparatus licences are able to pay multi-year licence fees by instalment.

At a meeting between the WIA and the SMA held in Canberra on Friday, 28 June, the WIA raised the matter as a number of members had found they could not make instalment payments. The SMA explained the arrangements implemented for multi-year licence payments for amateur licensees.

Amateurs can now pay their licence fees up to five years in advance, for which a discount of $11 per year for each additional year over and above the first year, is available. That is, to pay two years in advance, the fee is $91, a saving of $11 on twice the present yearly fee of $51. For three years, the fee is $131, a saving of $22; for four years, the fee is $171, a saving of $33, while for five years, the fee is $211, a saving of $44.

When the SMA next sends an "Offer to Renew" your licence, if you want to take advantage of the savings offered by a multi-year licence, notify your local SMA office.

Success for Region 3 Direction Finding Championships

Teams from 11 countries, including Australia, fielded a total of almost 60 competitors in the Second Region 3 Amateur Radio Direction Finding (ARDF) Championships, held in Townsville over 15-20 July.

ARDF is growing in importance around the world, particularly in the Asia-Pacific region. Australia won the privilege of hosting the Second Region 3 ARDF Championships at the International Amateur Radio Union (IARU) Region 3 Conference held in Singapore in September 1994. Last month's event was organised by the WIA's ARDF Coordinator, Wally Watkins VK4DO, and hosted by the Townsville Amateur Radio Club. A special event call sign, VI4RDF, was issued by the SMA for the occasion. The Championships were opened by the local member for the electorate of Herbert in North Queensland, Peter Lindsay VK4TO.

ARDF is like an amalgam of cross-country orienteering and amateur radio fox hunting. A number of transmitters are placed at intervals along a course. They turn on and off in a timed sequence. Bands used are 80 m and 2 m. Contestants compete in small teams. They travel on foot and have to find the transmitters and complete the course in a given time. ARDF is an activity for young and old alike. Only simple, handheld equipment is used by competitors. In Townsville, competitors participated in four team "grades" – seniors, juniors, women and old timers. Competitors were accommodated at the James Cook University in Townsville.

Competitors for this year's ARDF Championships came from as far away as Bulgaria, Khazakstan and the USA. The Japanese Amateur Radio League (JARL) sent 26 competitors, the greatest number from any of the amateur societies sponsoring competitors to the Championships. The American Radio Relay League (ARRL) sponsored one, as did the Bulgarian Federation of Radio Amateurs (BRFA), and the Polish

national amateur club (PZK). The Chinese Radio Sports Association (CRSA) sponsored ten people, while the Korean Amateur Radio League (KARL) sponsored 16. The New Zealand Amateur Radio Transmitters (NZART) sponsored 11, while the Khazakstan Amateur Radio Club (KARC) sponsored four. Thirteen attended from the WIA, including President, Neil Penfold, VK6NE, and South Australian Division Federal Councillor, Grant Willis VK5ZWI.

The Secretary of the Radio Amateur Society of Thailand (RAST), Thida HS1ASC, attended as an observer, as did Sangat 9M2SS from the Malaysian Amateur Radio Transmitters Society (MARTS), who is also a Director of the IARU Region 3 Association.

The new Secretary General of the CRSA, Chen Ping BA1HAM, who is also Chairman of the IARU Region 3 ARDF Committee, attended as the guest of the Townsville Amateur Radio Club.

Chen Ping organised the 1st Region 3 ARDF Championships which were held in China in 1993. Interviewed by *WIA News* when he arrived in Sydney on his flight from China, Chen revealed that he had first become involved in ARDF as a university student in Beijing, organising inter-university team competitions during 1963-64. Previously employed as a computer engineer with a petroleum company, since 1991 Chen has worked for the Chinese sports ministry administration in Beijing as a dedicated promoter of amateur radio which is seen as important to the country's development.

Before 1992, only club stations were permitted in China. Chen said, *"In 1992 we pursued the government to lift the ban on home stations. There was, and is, still some conservatism in China. The thought was that amateur radio home stations were somehow connected with spying."*

"We pushed some leaders," he said. *"There have been many changes at the political level in China, and many technical people have come to power. When proposals to allow home stations for radio amateurs were put, these people said 'why not?'*

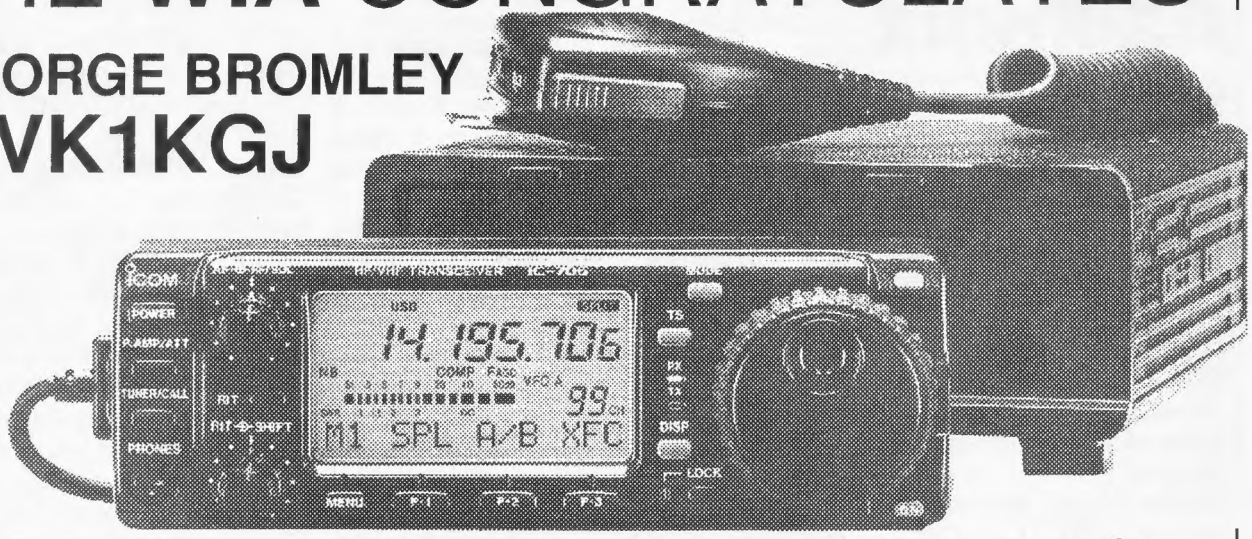
In 1992, there was a big meeting with the sports ministry and the radio regulatory commission of China, and the result was that after 1992, China began to have home stations."

Chen said there were now around 1000 home stations in China and the Chinese Radio Sports Association has some 6000 members. *"China is so large, it is hard to establish training classes and get clubs started."* However, he said there were now more than 100 club stations established. Amateur radio is particularly promoted in schools in China, using ARDF as an activity, he revealed.

Chen Ping arrived in Australia on the morning of 9 July and headed straight for North Queensland to meet up with ARDF Championships organiser, Wally Watkins VK4DO. The Townsville Amateur Radio Club is "sister club" with the Jiangsu Radio Sports Association of Nanjing.

THE **WIA** CONGRATULATES

GEORGE BROMLEY
VK1KGJ



the lucky winner of the fabulous Icom IC-706 transceiver prize in the 1995-96 WIA membership recruitment and retention campaign.

Mr Bromley is a member of the A.C.T. Division.

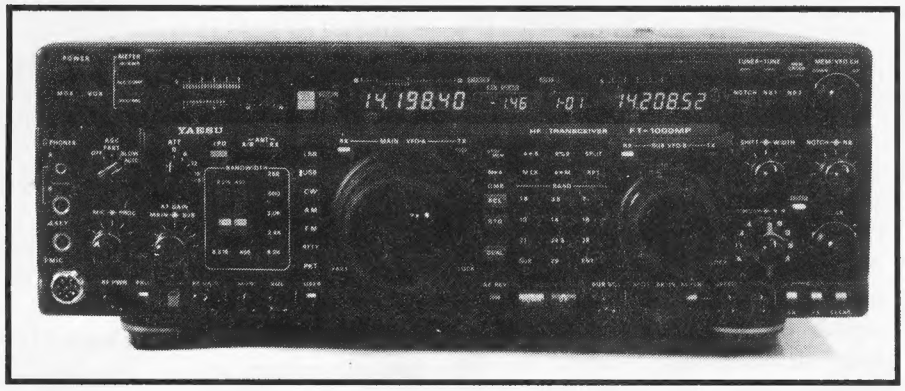
Generously donated by Icom (Australia), the IC-706 100 W HF/6m/2m all-modes rig is worth $2478.

The WIA thanks Icom (Australia) for their kind support in sponsoring the campaign.

■ Equipment Review

The Yaesu FT-1000MP All Mode HF Transceiver

*Reviewed by Ron Fisher VK3OM**



FT-1000MP

It's not often that a new updated model transceiver is introduced to the market at a price significantly lower than the unit it replaces. Actually, the original FT-1000 will continue in production but it is very unlikely that the Australian distributors Dick Smith Electronics will continue to stock it.

At $4495, the new FT-1000MP is the best value in amateur equipment we have seen for many years. I appreciate that this price will put it beyond the reach of most amateurs but, for the facilities that it offers, it is without doubt the price leader in top shelf transceivers. For the impecunious, just wait a few years and even the new FT-1000MP will become second hand.

The FT-1000MP competes directly with the IC-775DSP and, to a lesser extent, with the Kenwood TS-870. I say this because I believe that Kenwood might soon release a new top line transceiver to replace the aging TS-950SDX, perhaps the TS-960? If this happens, this new model would probably be more competitive against the FT-1000MP than the existing TS-870.

The new FT-1000MP is, of course, a brand new model that is very different in concept and facilities from the old FT-1000. The "MP", Yaesu state, is in memory of their founder, Sako Hasegawa JA1MP. You even get a copy of his QSL card included with your new FT-1000MP.

FT-1000MP Features and Facilities

The FT-1000MP incorporates everything you would expect in a top line transceiver. Let's run through the facilities offered. Firstly, it is fully self-contained with an inbuilt AC power supply. However, it is possible to operate it from a 12 volt DC power source if required. Although not available in Australia at the moment, the FT-1000MP can be purchased overseas less the inbuilt AC supply at a somewhat lower price. I feel that Dick Smith's policy of initially selling the AC version only is the correct way to go.

Naturally, the FT-1000MP sports two receivers that can be used at the same time. Unlike the earlier FT-1000, which could have an optional receiver bandpass filter unit to allow the second receiver to operate with any split compared to the main receiver, the FT-1000MP's second receiver can only operate within the front-end range of the first receiver, usually about one MHz wide. Each receiver can operate with independent mode selection which allows the possibility of diversity reception.

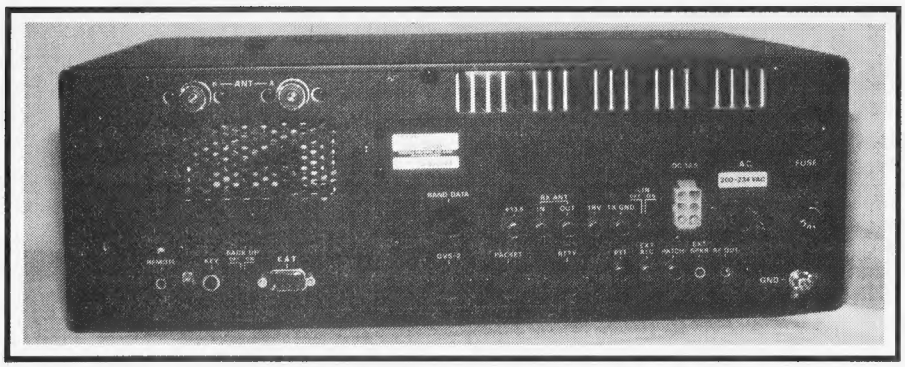
The receivers have independent audio gain controls and each has its own S meter. The received audio can be fed independently to each half of a pair of stereo headphones but there is only one speaker output which gives a mix of both sides. The FT-1000MP will operate on all normally used modes which include USB/LSB, CW, AM, FM, RTTY and Packet and can be remote controlled from your computer.

Of course, the transceiver has digital signal processing (DSP) included. Yaesu call their system "Enhanced Digital Signal Processing" (EDSP). As with other current transceiver designs, the DSP operates at the very low IF frequency of 11 kHz but, as distinct from some others, Yaesu do provide good conventional filters at the higher IFs, including a Collins Mechanical filter at 455 kHz. The history and basic operation of mechanical filters was discussed in last month's review of the Yaesu FT-900.

DSP is available on both receive and transmit. In the receive mode it is used for noise and heterodyne reduction and also for bandpass shaping. In the transmit mode the transmitted response is adjustable over very wide parameters as we will see later.

The FT-1000MP is slightly smaller and much lighter than the FT-1000. The reduction in weight from 25.5 kg down to 15 kg is explained by Yaesu reducing the RF power output of the new transceiver down to a nominal 100 watts as compared to 200 watts for the FT-1000. Also, the power supply is now a switched-mode system as against the transformer type of the FT-1000. Perhaps 100 watts output is more appropriate to today's needs than 200 watts. I would guess that many prospective owners of the FT-1000MP will have a linear amplifier and the 100 watt output is an ideal level for most linears.

It was said, when the original FT-1000 came out, that 200 watts output would eliminate the need for an amplifier. Well,



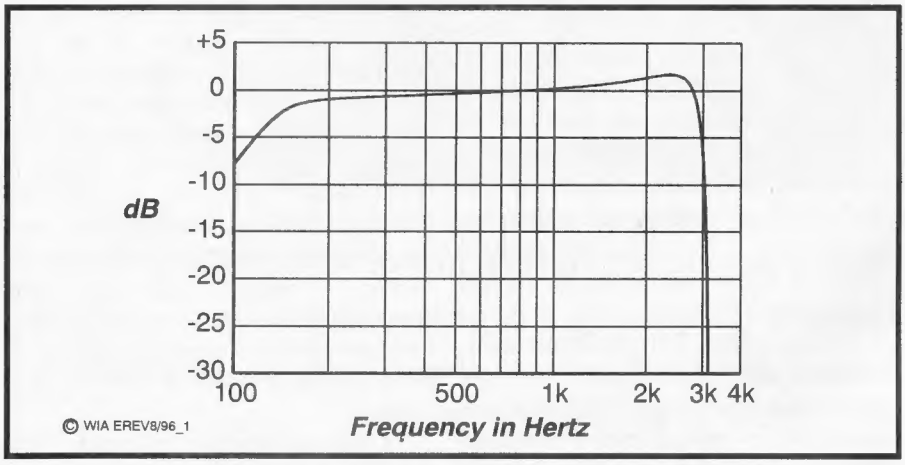
Uncluttered rear panel of the FT-1000MP. Note the two antenna connectors and the CAT input socket.

maybe yes, but try telling the big DXers that one.

The tuning system on the FT-1000MP is one of the most flexible yet encountered on an HF transceiver. Let's look at the variety of methods of getting around the bands that are available to the operator. The two tuning controls are both very smooth to use. The main control knob has a finger hole which will be appreciated by many operators. The tuning rate for each control is selectable over a very wide range. Steps as small as 0.625 Hz and as large as 20 Hz can be selected via the Menu (more about this later). Next is the new "Shuttle Jog Tuning" knob. This is mounted at the rear of the main tuning knob and is spring loaded at the centre point. As the knob is turned to either left or right the tuning starts to scan up or down with the scan speed increasing the further the knob is held over. It's an easy way to zip up and down the band.

Of course, there are all the usual ways to select a particular frequency. To name a few, you have direct access to any amateur band via the "Band" buttons to the right of the main tuning control; you have the "Up/Down" buttons to step up and down the general coverage bands in selectable segments plus, of course, the superb memory facilities; and there is the "VFO CH" control in the top right hand corner for stepping through the bands in small selectable steps. This control is also used to select memory channels when the transceiver is in the memory mode.

The display on the FT-1000MP is, without doubt, the most comprehensive ever seen on an amateur transceiver. Let's look at what it will tell you. As mentioned earlier, there is a separate S meter for each receiver. The main receiver S meter is also used to display several transmitter functions which include power output, ALC, SWR, speech compression, microphone input level, final amplifier collector current and DC voltage. The frequency and mode of each receiver is shown with the frequency displayed to 10 Hz resolution. The RIT and XIT also have 10 Hz resolution and you can offset to +/- 9.99 kHz.



Graph 1 – FT-1000MP transmit response, power output 20 W at 1 kHz, no compression, measured at 14.2 MHz.

FT-1000MP On The Air

The first thing that strikes you at switch-on is the display. Our review transceiver had the display illumination selected to high and it really looked like a cross between Luna Park and Las Vegas. Unfortunately, the whole display could be seen clearly, even the parts you didn't want to see. Rather confusing to say the least. With the illumination switched to low, (you only have two choices) things were much better, although I later noted that the brightness took a minute or so to come up to full intensity after initial switch-on.

Listening to the receiver before connecting the antenna I was astounded at the low internal noise level. At normal listening level the background noise was almost inaudible. There is a choice of two antenna inputs plus the option of a separate receiver antenna. This could be very useful for 160 metre operators who prefer, perhaps, a loop antenna for low noise and directional reception.

I soon found that the FT-1000MP is a complicated transceiver to drive and a full study of the instruction manual is very necessary if you want to make full use of the facilities available. The crux of this is mastering the menu system. There are eighty different functions that can be set to suit your own requirements. I've already mentioned one, the display illumination. Probably the main functions you will be looking for are the tuning step settings and the DSP parameters. You will need to keep your instruction book handy when starting out on this.

There is a lift-out sheet which gives all the menu settings on it with room to add your own notes. The trouble is that the display tells you what is happening, but in its own particular hieroglyphics. Without the manual you might find it difficult to work out where you are. You might find it difficult even with the manual in front of you! Most of the 80 menu items are either set-and-forget, or simply left on the default setting; but you will have fun going through them.

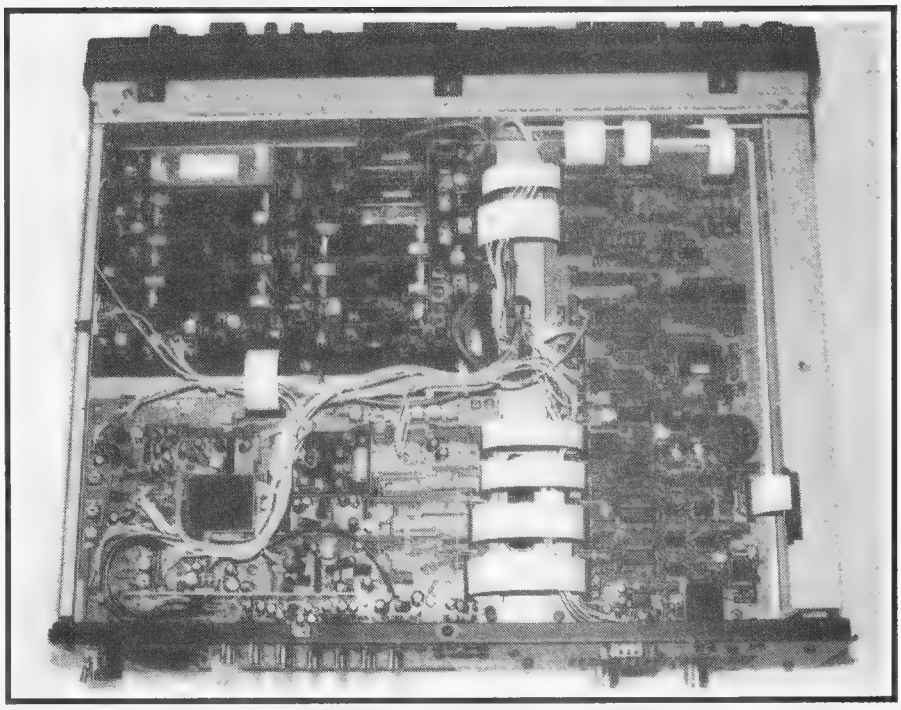
The first thing I changed was the

tuning speed and I set this to the slowest setting of 0.625 Hz per step. This gives an actual tuning rate of just over 300 Hz per knob revolution. Now this is perhaps too slow for normal tuning around, but a push of the "Fast" button speeds this up to about 3 kHz per revolution, an ideal combination for me. The tuning controls are very smooth but I would prefer a bit less tension in the centring spring of the Shuttle Jog tuning control.

The choice of selectivity options on the FT-1000MP is amazing. The shift/width controls do an excellent job. They are somewhat different in action from the SSB slope tuning on Kenwood transceivers but the overall effect is much the same. Normal setting is with both control pointers vertical. The width control increases selectivity at either the high or the low end of the selectivity curve depending on which way you turn the knob. The shift control will then place the resultant band-width selected just where you want it in the overall bandpass. Very handy to reduce QRM on either the high or low side of the signal.

The DSP contour control can also select various selectivity options. Through the menu system the operator can select the high and low cut-off frequencies. These work very well, but they are not readily changed. If you decide a different cut-off frequency is needed, you have to go back into the menu and then make your change. By the time you have done this it might be too late.

The FT-1000MP comes complete with a high quality 500 Hz CW filter which can be backed up with an optional "Collins" mechanical filter. The EDSP filtering can be also programmed to give excellent CW selectivity. To back all this up there is an excellent tunable notch filter which can reduce a heterodyne by up to 30 dB. The tunable notch can be used in any mode of reception. If this won't remove interference then it's over to the EDSP. Here there are three options. Firstly, for SSB reception the automatic notch filter will take out multiple heterodynes like magic. Unfortunately, you cannot use this for CW or digital modes as it would probably remove the signal you want in addition to the one you don't want.



Bottom view of the FT-1000MP with the case removed. The Collins 455 kHz SSB filter is in the top left hand corner of the chassis.

There are four positions of noise reduction. I have to admit that for SSB reception I could not find a situation where there was any improvement in readability using any of them. However, I am "cursed" with a very quiet location which makes evaluation of noise reduction systems difficult. I found the normal FT-1000MP noise blanker to be very effective. It has a selectable wide and narrow setting and is adjustable for level but, like many noise blankers, adjustment of the level control is critical to avoid cross modulation and other undesirable effects on the received signal. The two buttons that control the blanker and button for the notch filter have small green LED indicators built-in to indicate when they are selected. There are no cross modulation problems with the DSP noise reduction in use.

The AGC is controlled by a four position switch selecting either AGC off, fast, slow and auto. The auto position selects the appropriate delay times to suit the mode selected. A very handy feature if you like mode hopping.

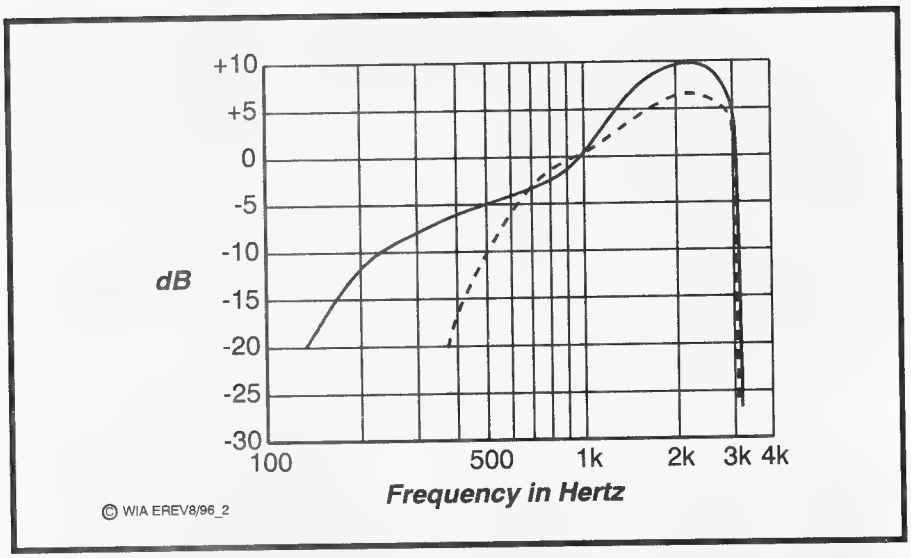
FT-1000MP On Test

There were a few things I wanted to test on the FT-1000MP, in particular the audio frequency response on SSB transmit with the EDSP selected. The results were quite amazing as we shall later see. However, first off the transmit power output on each band was checked with the following results. Current drain was not measured as a separate item this time as I felt it unlikely that many owners would use the transceiver from a separate supply.

Band	Power output
1.8 MHz	110 watts
3.6 MHz	105 watts
7.1 MHz	105 watts
10.1 MHz	102 watts
14.2 MHz	100 watts
18.1 MHz	100 watts
1.1 MHz	100 watts
24.5 MHz	100 watts
28.5 MHz	97 watts
29.5 MHz	97 watts.

Power output was measured in the CW mode. PEP output when using SSB was about 5% higher when measured on an oscilloscope. FM power output on 29.5 MHz was essentially the same as the CW output. AM power output should be limited to 25 watts to allow 100% modulation. With the power control at minimum the average power output on all modes was about one watt which should please the QRP operators.

Next on the list was a test to estimate transmitter intermodulation distortion.



Graph 2 – FT-1000MP transmit response, power output 10 W at 1 kHz, EDSP selected, measured at 14.2 MHz. Continuous line is EDSP 1; the broken line is EDSP 2.

One thing to take into account with the FT-1000MP is that the transmitter final stage runs with twelve volts rather than the higher voltage of some other top-line transceivers. The FT-1000, for instance, runs its final amplifier at 30 volts which will produce somewhat lower intermod distortion than the average 12 volt powered transceiver. My test showed intermod distortion on 14.2 MHz of -22 dB relative to just over 100 watts output. This is about average for a 12 volt powered transceiver but well below the figure obtained for the TS-870S a few months ago.

Finally, power output was checked through the automatic antenna tuner. With a simulated 3:1 SWR the loss on 14 MHz measured about seven watts.

The most interesting parts of the transmitter tests were the overall audio response with and without the EDSP. The response without the EDSP requires little comment except to note its smooth wide characteristic. The instruction book gives very little indication on what to expect when you select one of the four EDSP settings via the menu. They state that you can compensate for any voice or microphone. There must be some funny microphones and voices out there. A quick look at the curves will tell the story. On-air tests showed that most preferred the EDSP switched out but a few thought that position one of the EDSP could add a bit of bite to the audio under poor conditions. Take your pick. Incidentally, I later noted that Yaesu publish response curves for the transmit EDSP in their advertising brochure for the FT-1000MP but not in the instruction book. I wonder why?

My on-air tests were carried out using the supplied MH-31B8 hand microphone. This is the same type as supplied with the FT-900 except that this one is fitted with a standard eight pin metal connector in place of the plastic telephone type. Again I found that listeners usually preferred that the tone switch on the back of the microphone be set to position two. I was unable to test any other microphones with the FT-1000MP but I would have liked to try out the matching, elegant looking desk microphone type MD-100A8X.

Finally I checked the carrier and sideband suppression. Carrier suppression is rated as better than -40 dB. I estimate that our review transceiver was in excess of -50 dB. Sideband suppression measurement was limited by the intermodulation distortion but it appeared to meet the specified -50 dB without too much trouble.

Receiver Tests

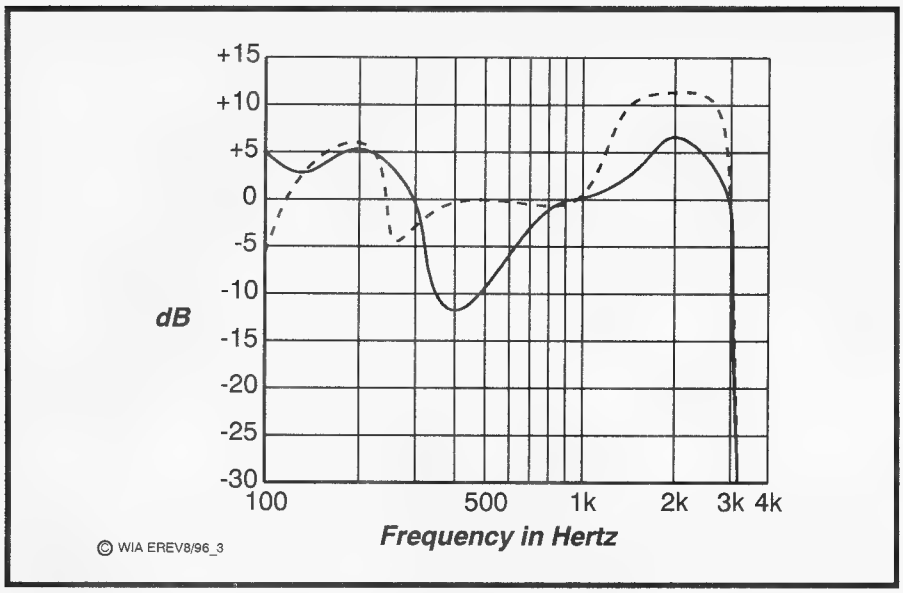
As usual the first receiver test was to check the S meter calibration. It seems that the days of moving coil meters in amateur transceivers is just about over. Like it or not, it seems we are stuck with bargraph metering. No doubt, they do have their advantages. In the case of the FT-1000MP you can monitor at least three different functions at the same time but perhaps not with the accuracy of an analogue meter. Within the limits of reading the FT-1000MP S meter here is what I found. Measurements were taken at 14.2 MHz with the attenuator off and the preamplifier on.

Reading	Voltage
S1	2.5 µV
S3	3.1 µV
S5	5.0 µV
S7	6.3 µV
S9	20.0 µV
S9+20 dB	250 µV
S9+40 dB	3.1 mV
S9+60 dB	0.035 volt.

The S meter reading for S9 varied somewhat from band to band. The lower bands required more input, the higher bands less. 160 metres required 70 µV for S9, while 10 metres only required 10 µV. As seems to be the standard these days, the front end attenuator gives 6, 12 and 18 dB loss. Again I ask manufacturers to consider adding an extra position to give 24 dB attenuation which I feel is necessary for meaningful antenna gain measurements. I wonder how many amateurs use their attenuators for this purpose anyway?

Received frequency response for SSB was essentially the same as the transmit response (see Graph 1). It is certainly very flat and smooth which shows up as excellent receive audio quality. Frequency response for AM reception was also very acceptable.

Although the top response is a little restricted, the general sound on AM is very good. I should also mention that the quality from the internal speaker is very much better than average. Receiver audio output was checked into a four ohm load as specified and was taken from the external 3.5 mm speaker output socket. Maximum audio power output was 3.9 watts at 30% distortion. At the specified output of 1.5 watts the distortion had dropped to only 1%, considerably better than the 10% quoted in the specifications. At 200 milliwatts this had reduced to an excellent 0.6% distortion. For comparison, the old FT-101B has around 8% distortion at the



Graph 3 – FT-1000MP transmit response, power output 10 W at 1 kHz, EDSP selected, measured at 14.2 MHz. Continuous line is EDSP 3; the broken line is EDSP 4.

same power level. Things have come a long way over the years.

Receiver sensitivity was measured at 14.2 MHz with the preamp in. The specified sensitivity for SSB and CW is 0.25 µV for 10 dB signal to noise ratio. I measured 12 dB s/n at 0.25 µV, just a shade better than the specification. Signals of less than 0.1 µV were clearly detectable even with strong local signals close by.

FT-1000MP Instruction Manual

The FT-1000MP instruction manual is, overall, an excellent publication. It contains all the information you will ever need in sorting out the operation of the transceiver. In particular, the section on the operation of the menu system is very well done. A separate lift-out sheet which you can keep on the desk for reference gives all the menu information. Very handy. Again, like the FT-900 instruction manual, I would like to see a better quality cover to give the book better durability.

Now to my usual grouch about instruction books, the lack of technical information. The strange thing is that a good part of this information is available in the elaborate advertising brochure which you can obtain free from your local distributor. As most of the information is already set up, why not include it in the instruction manual?

FT-1000MP Conclusion

Perhaps you can tell from the above that I am enthusiastic about the FT-1000MP. The price alone makes it a superb buy and the features that it offers could cost you at least 50% more in some other transceivers. It has almost everything. Well, almost. There is one thing missing. Strangely, there is no voice frequency read-out. Bad luck if you are sight impaired. Actually, come to think of it, the original FT-1000 didn't have provision for one either.

Another small niggle is the lack of a separate speaker output for each receiver. If I was fortunate enough to be able to purchase an FT-1000MP, I think I would like to have a speaker on each side for each receiver. Separate outputs are available for head phones, why not speakers? However, I have no hesitation in giving the FT-1000MP my highest recommendation. My thanks to Dick Smith Electronics for the loan of our review transceiver.

The FT-1000MP is currently priced at $4495. A range of matching accessories is also available. Contact your nearest Dick Smith store.

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■ VHF/UHF Propagation

Long-Distance VHF Ducting Opportunities from Australia

*Emil Pocock W3EP**

Every summer for the past two decades, dozens of 4000 km contacts have been completed between Hawaii and California on 144 through 5760 MHz. This is well beyond the normal distance for VHF and UHF communication, yet even low-powered FM stations have made the grade. These contacts are made possible by a reliable tropospheric duct, a kind of natural waveguide in the lower atmosphere, that forms predictably each year between the Hawaiian Islands and the West Coast of North America. Although this is perhaps the most famous of the oceanic ducts, similar conditions exist over all the world's sub-tropical oceans, including those adjacent to Australia. It seems likely that future records will not be made from California or Hawaii, but rather over the Indian or Atlantic oceans.

Australian-born Ross Hull, writing in a 1935 *QST* article, provided one of the first explanations of how conditions in the troposphere, the lowest weather-producing region of the atmosphere, could support long-distance VHF radio propagation. Experiences over the following decade suggested that the potential for transoceanic ducting might be quite extensive. Military radar operators in the Indian and Pacific oceans observed echoes from 2500 km and farther using 144-MHz equipment during World War II. In October 1945, W5GSG/KH6 heard a 127 MHz air controller on Christmas Island, 1600 km from Hawaii. Other long-distance VHF communications were also reported in amateur publications during the 1940s (Ref 1).

Professionals began studying this phenomenon over the Atlantic and Pacific oceans during the 1950s using airborne instruments and VHF ground stations. The resulting scientific articles provided the first descriptions of the trade-wind duct, as these studies called the unusual upper-air conditions that supported long-distance VHF communication over the semitropical oceans (Ref 2). By the mid-1950s, John Chambers KH6UK and Ralph Thomas W6NLZ were planning to span the even longer path between Hawaii and California on 144 MHz using a tropospheric duct they were confident existed over the eastern Pacific.

The Historic Hawaii-California Path

On 8 July 1957, after more than a year of tests, KH6UK and W6NLZ finally made a historic 144 MHz contact. The pair repeated the feat two years later on 220 MHz, but few others seemed interested in duplicating this pioneering work. A breakthrough came during July 1973, when dozens of two-metre operators unexpectedly made several hundred QSOs between Hawaii and California, primarily through a Hawaiian FM repeater at 2440 metres elevation (Ref 3). In the years that followed, the reliable Hawaiian duct has provided countless contacts between the islands and California. Paul Lieb KH6HME and Louis Anciaux WB6NMT completed the first 432 MHz contact over this path in July 1979, and the most optimistic operators assumed that making it on even higher bands was just a matter of time. Indeed it was. By August 1995, Hawaii had been linked to the American mainland as high as 5760 MHz (see Table 1).

North American operators now look forward to several days' worth of long-distance VHF and UHF ducting conditions to Hawaii every summer. The most productive months are July and August, but the duct has been observed often enough as late as December. It rarely appears during the first half of the year (Ref 4). This predictable cycle of duct formation corresponds closely to the annual movement of a semi-permanent region of high atmospheric pressure in the eastern Pacific, known as the Hawaiian High.

During July and August, the centre of the Hawaiian High is usually situated close to 40 degrees north latitude. Ducting paths commonly form on the equatorial side of the centre of high pressure, as shown in Figure 1.

During September and October, the high weakens as it migrates southward. It lies at its most southerly extent around 30 degrees north latitude in January. It then begins a northward migration during March and April to complete an

Table 1
Record Tropo Contacts

Band (MHz)	*Date*	*Stations*	*Distance (km)*
144	1995 June 30	KH6HME—W7FI	4333
220	1989 July 15	KH6HME—XE2/N6XQ	4142
432	1989 July 15	KH6HME—XE2/N6XQ	4142
902	1994 July 13	KH6HME—N6XQ	4061
1296	1989 July 15	KH6HME— XE2/N6XQ	4142
2304	1994 July 14	KH6HME—N6CA	3973
3456	1991 July 28	KH6HME—N6CA	3973
5760	1991 July 29	KH6HME—N6CA	3973
10 GHz	1994 Dec 30	VK6KZ—VK5NY	1991

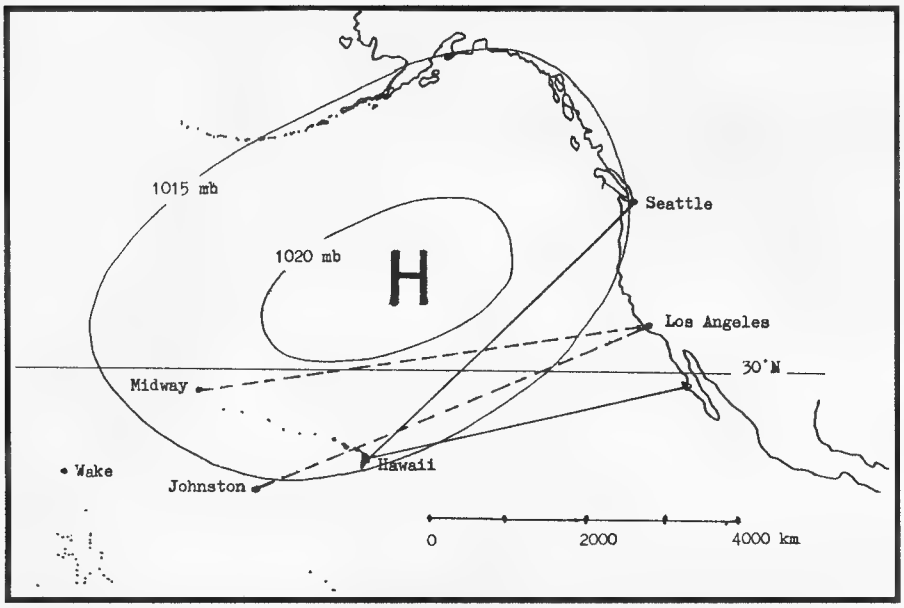

Figure 1 – Mean location of the Hawaiian High and sea-level pressure (mb) during July and August. Solid lines indicate observed 144 MHz ducting paths. Dotted lines show possible 144 MHz ducting paths.

annual cycle. This process is duplicated in other subtropical regions, most notably in the southern hemisphere over the Indian Ocean. The reasons why large high-pressure regions migrate during the course of the year and the mechanism by which they create stable long-distance tropospheric ducts are related phenomena.

Ducts, Temperature Inversions, and Subsidence

Temperature inversions form under several different weather conditions, but they are most commonly associated with subsidence. When air is forced downward through the troposphere, it is compressed by the increasing atmospheric pressure. Because the temperature of a volume of compressed air rises, subsiding air is warmed. This warming is a source of upper-air temperature inversions and, ultimately, of ducting conditions. Subsiding air is usually much drier than the surrounding air as well, because it originated as much cooler air higher in the atmosphere. Cool air can hold very little moisture and none is added as it subsides. Thus the air in temperature inversions caused by subsidence is both warmer and drier than the air below, ideal for ducting.

Large-scale subsidence is one of the characteristics of atmospheric high-pressure regions, or anticyclones. The air within warm-weather anticyclones descends through the atmosphere from 10,000 metres and higher. The descending air is compressed, heated, and dried. Several layers of distinct temperature inversions may appear from several thousand metres altitude to near the Earth's surface, although the lowest inversion is usually the most useful for ducting. The weather directly under high-pressure is generally clear, warm, and dry, with light and variable breezes. The descending air eventually flows out over the surface of the Earth, making anticyclones inherently expanding systems. Coriolis and centrifugal forces derived from the Earth's rotation, along with frictional forces along the Earth's surface, turn this flow in a counter-clockwise direction in the southern hemisphere, creating a steady breeze around the outer portions of the anticyclone (Ref 5).

Anticyclone Formation and Global Atmospheric Circulation

Large semi-permanent regions of high pressure, such as the Hawaiian High and the similar Réunion High over the Indian Ocean, are sustained by global air circulation patterns. The Earth's surface is generally warmest over the equatorial regions. Surface heating causes massive air currents to rise into the troposphere, creating a belt of low pressure near the equator. This rising equatorial air spreads north and south, gradually cools, and sinks around 30 degrees from the equator, forming two globe-encircling subtropical anticyclone belts. It is here that great transoceanic ducts commonly form. These generally calm regions are also known as the horse latitudes, so named because sailors on becalmed sailing ships were sometimes forced to throw horses and cattle overboard for lack of feed and water. Over much of the

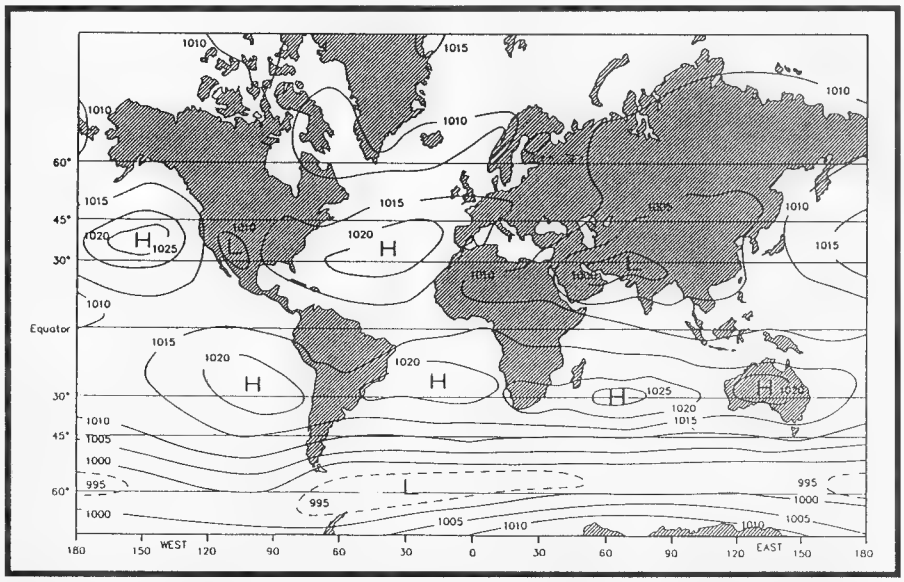

Figure 2 – Mean sea-level atmospheric pressure (mb) over the Earth during July. Adopted from P Tchernia, "Descriptive Regional Oceanography" (Oxford: Pergamon, 1980), plate 3.

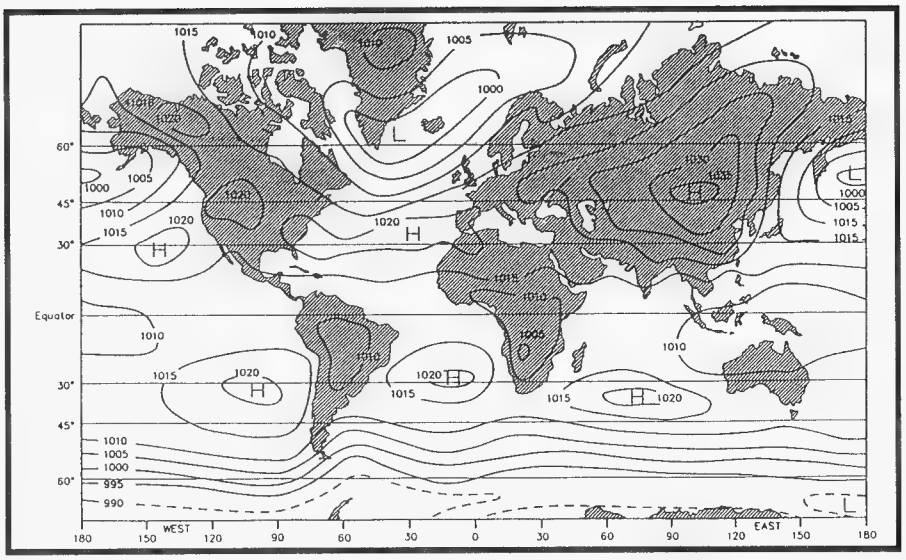

Figure 3 – Mean sea-level pressure (mb) over the Earth during January. Adopted from Tchernia, plate 2.

land area at the same latitudes, subsiding warm, dry, air creates the world's great deserts, such as those of interior Australia.

The upper-atmospheric circulation and associated surface features, including the sub-tropical anti-cyclones, migrate north and south due to the Earth's variable tilt in relation to the sun. The Earth's angle to the sun varies over a 47 degree range during the course of a year. The position of the upper-air circulation cells shift accordingly and pull the sub-tropical anti-cyclones over a 10 to 15 degree range annually. The mean pressure, total area, and northerly extent of the anti-cyclone belts are generally greatest in July (Ref 6). Compare Figures 2 and 3.

Although the model of atmospheric circulation suggests high pressure would appear as a continuous belt at about 30 degrees north and south latitude, the belt is actually broken into separate anti-cyclonic systems. Surface heating over the continental land masses partially counters the effects of subsidence, leaving the most prominent semi-permanent high-pressure regions over the oceans. Just two semi-permanent anticyclones form in the northern hemisphere, the Pacific Hawaiian High and the Atlantic Bermuda-Azores High. Three separate highs appear in the southern hemisphere over the Pacific, Atlantic, and Indian oceans, in addition to the exceptional continental high over Australia in winter. The Réunion High over the Indian Ocean is most notable. Each has the potential to support long-distance ducting conditions at VHF and higher.

Australia and the Réunion High

The most spectacular long-distance tropospheric ducting contacts in Australia so far have been in the 2000 km range across the Great Australian Bight. The recent 10 GHz world record of 1911 km, made by Wally Howse VK6KZ and Robert Bowman VK5NY on 30 December 1994, attests to the generally favourable ducting conditions that are present over the area in summer. Nevertheless, the future for this path is limited. Distances could be extended a few hundred more kilometres from Tasmania, but that would just about exhaust the potential of trans-Bight paths. In contrast, the possibilities from Australia over the western Pacific and the Indian oceans are much greater.

VHF contacts via tropospheric ducting have been reported occasionally from the east coast to New Zealand and other nearby islands, but these paths have not approached the distances achieved by the Americans. This could be explained in part by Figures 2 and 3, which suggest that the belt of semi-tropical high pressure is generally weak between Australia and the mid-Pacific. Thus the potential for world record-breaking paths in the western Pacific appear less likely than elsewhere. Even so, ducting paths might be possible as far as Tonga (3300 km) or even further. An entirely different situation exists off the west coast, where the Réunion High dominates the southern Indian Ocean and might offer some very exciting possibilities.

The Réunion High sprawls between Australia and South Africa, as shown in Figure 4. It appears to reach its greatest strength in July and August, although it is not clear if winter is the most favourable time for duct formation. In any event, the strongest ducts would likely form to the north of the high pressure centre. Reliable VHF paths probably occur between South Africa and various mid-Indian Ocean islands, such as Réunion, Mauritius, and Rodrigues. The distance from Port Elizabeth to Rodrigues is about 4100 km, or about the same as the current world records made between Hawaii and North America. Longer contacts, such as Réunion to north-western Australia (about 9950 km) or entirely across the Indian Ocean (over 11,000 km) appear fantastic, yet they may be worth attempting in a series of progressive trials from the South African side.

The main problem from the Australian end is the absence of islands at intermediate distances to the west. Cocos is probably too far north and Amsterdam Island too far south to be within a duct formed under the Réunion High. The closest islands in favourable locations are those in the Rodrigues group, 5150 km from the nearest point on the western Australian coast. One problem is that it is unlikely there are any permanent VHF operators on Rodrigues to participate in trans-oceanic tests. Maritime mobile operations or expeditions, perhaps attached to low-band DX groups, might provide the needed opportunities to test the potential of ducting over the Indian Ocean.

Possibilities in Other Parts of the World

VHF contacts sustained by the Réunion High have the potential for yielding the ultimate tropospheric ducting distance records, but practical difficulties of establishing VHF operations in favourable locations may delay realising these goals. It does not

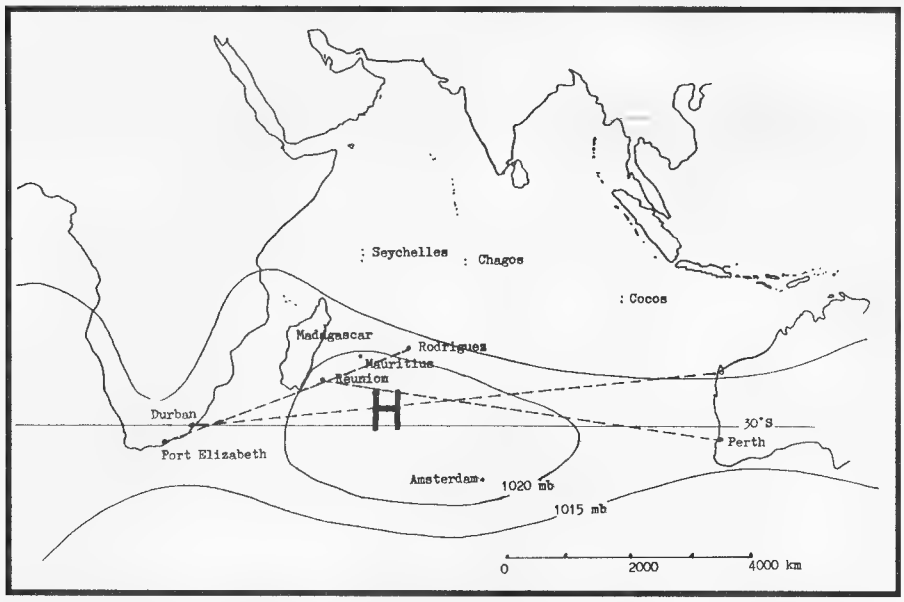

Figure 4 – Mean location of the Réunion High and sea-level pressure (mb) during August and September. Dotted lines suggest possible 144 MHz ducting paths.

seem likely that the distances over the eastern Pacific will be extended dramatically. The North American side is limited by a nearly continuous range of coastal mountains, which rise higher than the normal elevation of the duct. The western end could possibly be stretched to the outer Hawaiian islands as far as Midway (5475 km from Los Angeles) or possibly to Johnston Island (5600 km) if there were VHF operators at these locations. A California to Wake Island contact (7375 km) appears to be a remote possibility.

Similar conditions over the north Atlantic Ocean, sustained by the Bermuda-Azores High, may yield record-breaking results much sooner. The most likely transatlantic paths lie between the Caribbean and the southern United States on the western side and southern Europe and North Africa to the east. These end points are generally well populated with serious VHF stations and preparations are already under way to test the possibilities. The distances involved are in the 6000 to 7000 km range, much further than those achieved in the eastern Pacific, but within practical reach. The announcement of the Brendan Trophies for the first 144-MHz transatlantic contact using terrestrial means of propagation may accelerate the search for a tropo-ducting path across the Atlantic (Ref 7).

No doubt avid VHF operators will be pushing toward the limits in the eastern Pacific and Atlantic oceans in the coming years, but there is no reason why distance records have to remain in the northern hemisphere. Although VHF activity levels may be lower in the Indian Ocean region than elsewhere in the world, the regions adjacent to Australian coasts may have the highest potential for the ultimate tropospheric ducting records.

References

1. Ross A Hull, "Air-Mass Conditions and the Bending of Ultra-High Frequency Waves", QST (June 1935), 13-18, 74, 76. See also Ed Tilton, "World Above 50 Mc. [112 and 127-MHz Ducting in the Pacific]", QST (Jan 1946), 53; and Ed Tilton, "Commercials Steal Our Thunder – Airline Ops Work 1000 Miles on 130.7 Mc", QST (July 1948), 66.

2. D L Ringwalt and F C MacDonald, "Elevated Duct Propagation in the Tradewinds", IRE Transactions on Antennas and Propagation (July 1961), 377-83; and N W Guinard, J Ransone, D Randall, C Purves, and P Watkins, "Propagation Through an Elevated Duct: Tradewinds III," IEEE Transactions on Antennas and Propagation (July 1964), 479-90.

3. For details of these achievements, see Ed Tilton, "World Above 50 Mc [KH6UK – W6NLZ 144-MHz Contact]", QST (Sept 1957), 62-63; Ed Tilton, "World Above 50 Mc [KH6UK-W6NLZ 220-MHz Contact]", QST (Aug 1959), 68; and Bill Smith, "California-Hawaii Bridged on 146 and 432", QST (Sept 1973), 102; and Bill Smith, "Transpacific VHF Duct Propagation", QST (Nov 1973), 100-02.

4. These conclusions are based on the observations of Robert J Cooke, W6PJA, made between 1979 and 1986.

5. For more detailed discussion of duct formation, see Emil Pocock, "Transoceanic Ducting at VHF and Above", QST (March 1996), 41-46. For general background, see B R Bean and E J Dutton. Radio Meteorology (Washington: Government Printing Office, 1966).

6. P Tchernia, Descriptive Regional Oceanography (Oxford: Pergamon, 1980) and National Oceanic and Atmospheric Administration, National Climatic Data Center, Monthly Climatic Data for the World.

7. 'Announcing the Transatlantic 2 m Challenge: The Brendan Trophies", Radio Communications 71 (June 1995), 13; and Geoffrey H Grayer, "How to Win the Brendan Trophies", Radio Communications 71 (June 1995), 14-17.

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WIA News

Future of the Amateur Service Study

Details were given in July's *WIA News* of the International Amateur Radio Union's (IARU) moves to look into the future of the Amateur Service in preparation for consideration of the International Radio Regulations concerning amateur radio at the 1999 World Radio Conference (WRC-99).

WIA members wanting to read and comment on the IARU's paper on this issue are asked to contact their Division for a copy of the paper. All WIA Divisions have a copy of the paper, but only the larger Divisions have copying facilities. If a copy is difficult to obtain, contact the WIA Media Liaison Officer, VK2ZRH, at LMB 888, Woollahra 2025.

■ Antennas

An Optimised Sloper for 80 Metres

Felix Scerri VK4FUQ suggests a sloper with an elevated radial as a good 80 m antenna for restricted areas.*

The full size half wave dipole is perhaps the standard antenna for 80 metres; however, its considerable length of around 40.26 metres (132 feet) rules it out of a lot of domestic situations. A trapped vertical or similar antenna is a practical alternative, but these antennas are generally a long way down on a dipole in performance. If one has the space for at least half the required space for a half wave dipole, then this sloper is worth considering.

I don't claim any originality for this antenna. It simply consists of a sloping quarter wave radiator worked against a single resonant radial.

The sloping radiator is an interesting antenna as it exhibits characteristics (depending on the slope angle) intermediate between true verticals and horizontal wires, and also has some directivity in the slope direction. Being a quarter wave radiator, it requires some sort of counterpoise. This is the purpose of the single quarter wave radial.

Much has been written on the subject of earthing and counterpoises for vertical antennas, with the general conclusion that reduced ground losses require very extensive earth systems. My work with this antenna leads me to differ somewhat. I believe that a simple resonant radial, as long as it is elevated, can be enough.

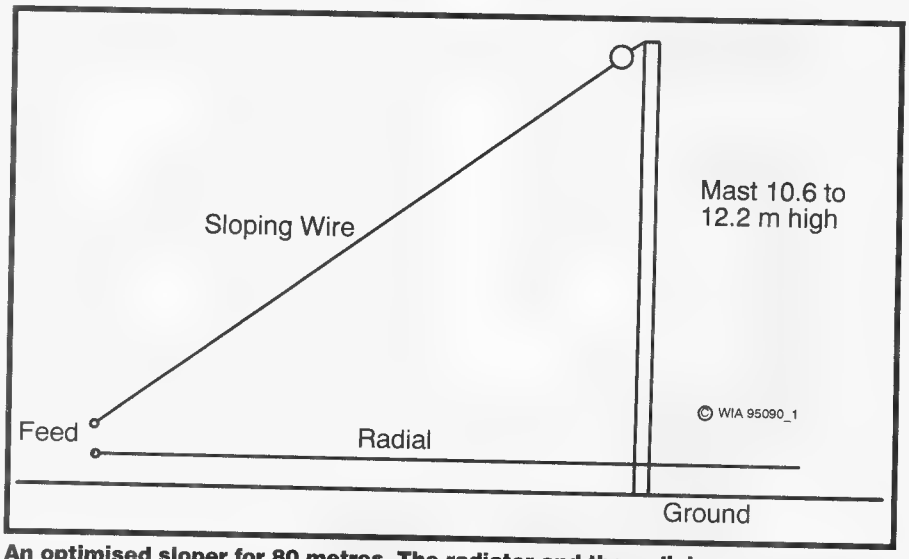
The elevated radial is the key to success. In fact, it was staggering to note during tests, the effect on both transmit and receive of varying the height of the radial. With the radial resting on the ground the results were very poor. When the radial was raised 1.5 to 2.4 metres (5 to 8 feet) above the ground, the difference was amazing. I compared both a folded quarter wave and a single wire radiator and obtained similar results.

My preference would be to use the folded section, as this results in improved efficiency through the impedance step-up action of the folded section. In operation, as noted earlier, some directivity in the slope direction is apparent but, overall, the pattern seems generally quite omni-directional, and signal levels are comparable to full size dipoles.

Direct coax feed can be used, but a tuner is probably necessary, as the termination resistance is likely not to be 50 ohms. Open wire line with a 4:1 balun is also an option.

In conclusion, I must say that the elevated radial is the key to good performance with this antenna. So, if you can manage a 19.8 m (65 feet) sloper, the associated elevated radial and a 10.6 m (35 feet) pole, then give this antenna a go.

**9 Garbutt Street, Ingham QLD 4850*



An optimised sloper for 80 metres. The radiator and the radial are a quarter of a wavelength long. The length in metres = 71.37/Freq in MHz. The length in feet = 234/Freq in MHz. The radial should be 1.5 to 2.4 m (5 to 8 feet) above the ground and immediately underneath the radiator. Use good quality insulators at the top of the mast.

WIA News

New Licence Conditions

Changes to the Radiocommunications Act Regulations made last year have led to a new Determination of amateur licence conditions, finalised by the SMA last September, a copy of which was sent to the WIA in June. These new licence conditions cover various aspects of amateur station operation, including station control and content of transmissions, and are intended to replace the conditions spelled out in the SMA document on amateur regulations, RIB 71.

At the WIA-SMA meeting at the end of June, the SMA indicated that a new RIB 71 is being prepared and it is anticipated that it will be published towards the end of this year.

The new licence conditions are to be used by the WIA to prepare updated regulations exam questions for the amateur licence exams.

Technical Abstracts

*Gil Sones VK3AUI**

Comparison of 2 Metre Handhelds

Two metre handheld radios, which have only been around for approximately 20 years, are becoming smaller and more sophisticated. The KEN KP202 which was, for many VK amateurs, their first handheld, only offered around 1.5 watts and five or six channels. Now, most handhelds cover the whole band and are capable of 5 watts with an accessory battery pack. One reviewed below is very tiny and uses two AA cells to give over 200 mW. Here, size has been traded for power and the Standard C-108A is truly palm-size.

In May 1996 *QST*, Glen Swanson KB1GW reviewed the offerings of the major manufacturers in the USA. Seven handhelds were reviewed and compared. The ARRL, which published *QST*, buys all review items just like any other ham so that average radios are reviewed.

The results are presented in Table 1. Some of the makes and models may not be as available in Australia as in the USA, but they are all from manufacturers who are distributed here although some have less prominence than others. The Standard C-108A is a tiny palm-size transceiver which uses a couple of AA cells for power. It is the smallest of the group and is aimed at a niche market. The Standard C-178A has a low power 432 MHz capability but is not truly a dual-bander.

Conversion Chart

A very useful chart appeared in CQ DL for October 1995 which allows easy conversion between power, dBm, voltage in 50 ohms, and dBμV in 50 Ohms as well as giving S units and the thermal noise level at 25 degrees Celsius for various bandwidths. The chart was presented by Prof Dr Hans-Hellmuth Cuno DL2CH. It is a most useful chart and is reproduced as Table 2.

Table 1 Two Metre Handheld Radios

Radio		ICOM ICT22A	KENWOOD TH22AT	YAESU FT10R	YAESU FT11R
Sensitivity dBm for 12 dB SINAD		-123	-123	-123	-122.5
Two Tone 3rd Order IMD Dynamic Range 20 kHz Offset dB		61	76	75	63
10 MHz Offset dB		80	83	78	74
Adjacent Channel Rejection dB 20 kHz Offset		60	59	67	69
IF Rejection dB		115	112	120	98
Image Rejection dB		69	85	80	61
Mute Sens dBm		-124	-126	-127	-127
AF O/P mW/8 ohm		211	281	328	151
Current Drain mA	Rx (Squelched)	150	45	50	140
	Tx	1400 (@13.8V)	1300	1200	1500
Tx Output Power Watts	High	5.0	5.0	2.7	2.0
	Med		0.4	0.9	1.8
	Low	0.4	0.05	0.12	0.45
Tx/Rx Turnaround Time m/S		90	100	60	250
Rx/Tx Turnaround Time m/S		125	48	35	95

Radio		ALINCO DJ91	STANDARD C108A	STANDARD C178AR
Sensitivity dBm for 12 dB SINAD	144 MHz	-122	-122	-123
	432 MHz			-122
Two Tone 3rd Order IMD Dynamic Range 20 kHz Offset dB	144 MHz	58	63	66
	432 MHz			68
10 MHz Offset dB	144 MHz	65	66	76
	432 MHz			70
Adjacent Channel Rejection dB 20 kHz Offset	144 MHz	57	60	60
	432 MHz			58
IF Rejection dB	144 MHz	90	95	79
	432 MHz			85
Image Rejection dB	144 MHz	65	67	78
	432 MHz			20
Mute Sens dBm	144 MHz	-129	-126	-132
	432 MHz			-128

Continued over page

Table 1 ***(continued)***

Radio		ALINCO DJ91	STANDARD C108A	STANDARD C178AR
AF O/P	mW/8 ohm	151	88	263
Current Drain mA	Rx (Squelched)	50	40	50
	Tx	1000 (@13.8V)	210 (2xAA)	900
Tx Output Power Watts	144 MHz			
	High	2.0	0.29	3.2
	Med			2.5/0.4
	Low	0.5		0.074
	432 MHz			0.05
Tx/Rx Turnaround Time m/S		136	65	60
Rx/Tx Turnaround Time m/S		72	60	55

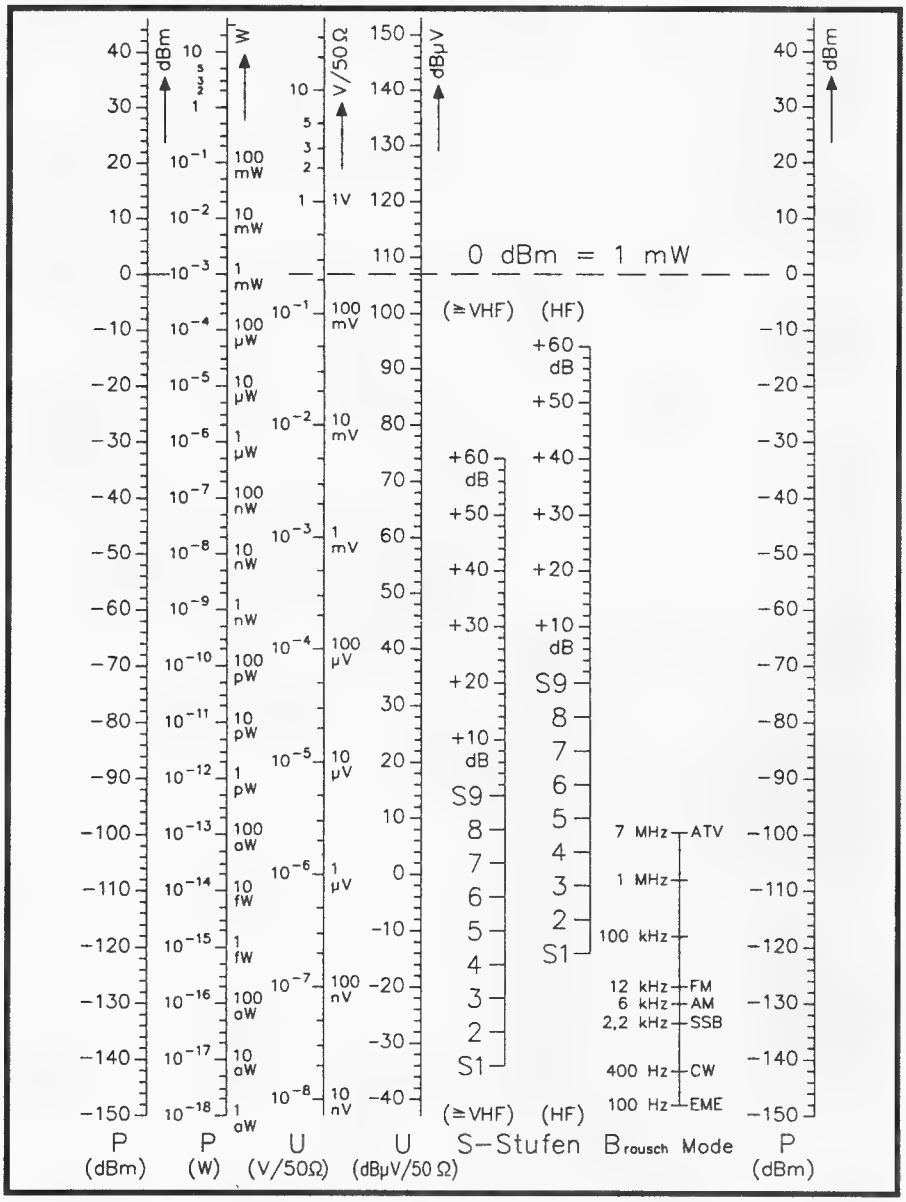


Table 2

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WIA News

Good Publicity for Amateur Radio

Gladesville Amateur Radio Club (GARC) in Sydney scored some publicity mileage for amateur radio with an article on the club's specialty – amateur television – in the 21 June 1996 issue of *Uniken*, the University of NSW's fortnightly newspaper.

The story, headed "Science stories on 'kitchen' TV", filled three-quarters of page 6, right in the middle-spread of the newspaper. The story outlined the club's history of television transmissions, which for more than ten years have emanated from the "studio" in the kitchen at the home of club President, Keith Cunliffe VK2ZZO. *Uniken's* reporter outlined the sort of material put to air, which has included reports of scientific and technological developments, as well as the club's "mainstay", the popular theory lectures by Ron Bertrand.

Uniken's reporter went on to detail how, over the years a number of club members had become engrossed by the technology and went on to careers as engineers and in commercial television.

Meanwhile, the Institute of Radio and Electronics Engineers' (IREE) magazine, *Monitor*, Volume 21 No 1 for 1996, received in June, has two articles on amateur radio events. The first covers IREE activities in Hobart last December, celebrating Radio Foundation Day. The article details how Richard Rogers VK7RO of the WIA successfully attempted contact with Joe Craig, of the Newfoundland Radio Amateurs Club, operating VO1NA at St John's, Newfoundland on Canada's west coast.

The second article, by Professor Paul Edwards of the University of Canberra's Electronics Engineering and Applied Physics faculty, tells how the WIA ACT Division made successful moonbounce contacts to commemorate the IREE Marconi Day last December, using the 10 metre diameter dish facility of the University's Advanced Telecommunications Research Centre.

■ Antennas

Random Radiators

*with Ron Cook VK3AFW and Ron Fisher VK3OM**

This month a few helpful hints on installing coax connectors, plus an interesting design for a compact HF antenna and a really cheap QRP RF power meter.

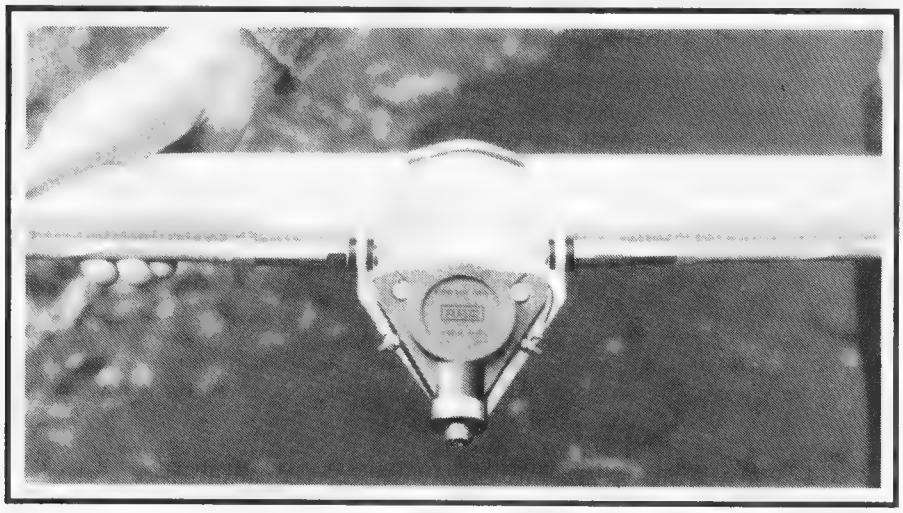
Compact HF Antenna

But first, let's look at a cheap and effective antenna for any HF band. The antenna described was built for 40 metres but the design is easily adapted for any frequency. It was actually built up nearly ten years ago and I intended to write it up at the time but, as often happens, something got in the way and the whole thing was forgotten. I was reminded of it again by an article in February 1995 *QST* which rediscovered my idea. A quick search through my photographic archives produced the original photos taken at the time. So here it is, an antenna very suitable for use at any location with limited real estate. It is compact and light enough to put it up and pull it down in a minute or so. Your neighbours will never know that it was there. OK, so what is it?

It is very simple; two mobile whips mounted end to end to form a dipole. Just purchase, or make up (we hope our readers come into the latter classification) a pair of whips for your preferred band and mount them to a wooden support as shown in the illustrations and you will be in business. A single U-bolt is more than adequate to attach the antenna to a pipe or wooden mast. I used a 1:1 balun to provide a balanced feed to the antennas from 50 ohm coax. The type shown in the photo could be substituted with a six turn coil of coaxial cable about 12 cm in diameter which would probably do the same job.

You will, of course, need to prune the antennas to give a low SWR at your preferred operating frequency. One small problem with a set-up like this is that you must expect a fairly limited bandwidth on 80 and 40 metres, although an ATU might well extend this somewhat. On the higher bands, where the whips become relatively longer in terms of wavelength, the bandwidth will, of course, be better. So, how did the antenna work out?

At the time I did comparison tests with a full size 40 metre dipole at something over twice the height and found that it was, in general, about two S points up on the short dipole. If the short dipole had been mounted higher, I am sure the difference would have been much less. Also, there is one thing you can do with this antenna that might be a bit difficult with a full size antenna. You can rotate it and it does have a worthwhile front (or back) to side ratio.



A close-up of the two mobile whips mounted to a wooden support and connected to the 1:1 balun. The U-bolt should be quite adequate to attach this compact HF antenna to a pipe or wooden mast.

Some time ago we discussed the performance of mobile antennas mounted on vehicles in this column but I cannot recall looking at mobile whips used as fixed station antennas. There is no doubt that they are a very effective alternative when it is impossible to put up a full-size antenna. To prove this point, we are keeping in regular contact on 20 metres with our friend Ira WA2OAX who is located in the centre of Manhattan living in an apartment. He is using a mobile whip antenna mounted on his balcony rail and working his fair share of DX. Tests have shown that his signal is not too far behind stations using three and four element tri-band beams (but remember what we said about tri-band beams a few months ago!). But also, don't forget that we are right at the bottom of the current sun spot cycle and many amateurs are convinced that 20 metres is dead and working DX is supposed to be impossible.

Problems With Coaxial Connectors

Over the years I have seen some unbelievable attempts at terminating coax cable to standard PL-259 connectors. I almost wish I had kept a few that I could now photograph and show how NOT to do it. Many amateurs have developed their own ways of terminating connectors over the years; if you are happy with the results your method is achieving, then stick with it.

However, a few thoughts might come in handy. The first thing is, of course, to have the correct connector to suit the type of coaxial cable you are using. Ninety nine times out of a hundred this will be either RG-58 or RG-8/213 type cable. Connectors are commonly available for each type but adaptors can be fitted into the larger sized ones to fit the smaller cable. It's on this subject that I noted a letter in *QST* a few months ago that makes interesting reading,

The compact HF directional antenna up in the air and working.

particularly in regard to the technique of fitting large sized connectors to RG-58 type cable using adaptors.

The author is Steve Katz WB2WIK/6 who is Vice President of Engineering, S&S Cable Co. It sounds as if he should know what to do. Let me precis a few of the important points.

"Silver plated reducers UG-175 and UG-176 were developed about 40 years ago specifically to not require that the braid of the cable they are reducing be soldered to them. Rather than resulting in a "better" connection, soldering is likely to damage the coaxial cable. Normal coax cables used by amateurs have a maximum operating temperature of 90° C. Above this temperature the jacket and dielectric will melt and lose the properties required for good coaxial cable. If you solder to the adaptor the temperature of the coax will rise to that of molten solder, approximately 230° C, not a very good idea. To correctly install the reducers, fold the braid back over the reducer, screw the reducer into the PL-259 body and then solder the braid to the body of the connector very rapidly through the four holes in the PL-259 body".

Now, this is where the problem comes in. I suspect that many of the atrocious attempts I mentioned earlier were made with soldering irons far too small. It is suggested that you use, *"An old fashioned large iron-tip soldering iron such as a Weller SP120"*. Also, *"The trick of soldering PL-259s with or without a reducer is to do the job with sufficient heat to make the solder reflow in less than one second. Although this raises the cable's dielectric temperature to slightly above its 90° C rating, it will do so very briefly, usually not long enough to cause damage"*.

So, there you are; bring out the old plumber's electric iron and produce professional connections. The minimum-sized iron that I use is an old "Scope", but it is essential that the bit is clean and not pitted. I also cover the cable end of the connector and the first two or three cm of the cable with shrink plastic. This helps to weather proof the whole thing and stop moisture getting in. Good luck with better connections.

A Cheap QRP RF Power Meter

No, this won't take the place of your commercial $300 super power meter. I found it in a little known (in Australia) American magazine called *Worldradio*, which is probably better known for Kurt N Sterba's light-hearted antenna articles.

The power meter uses one of those battery testers included with Duracell alkaline batteries. The author, Mike Greenfield N9JIY, found that the tester had a resistance of 4.5 ohms. With 1.5 volts across this the indicator goes to about half scale. Mike wired the tester in series with a 50 ohm dummy load and carried out a few tests. Firstly, the battery tester is capable of handling about 0.5 watt which gives the meter an upper limit of just above six watts. You will probably need a calibrated watt meter to calibrate the scale on your new meter. It will probably read PEP quite well for SSB. Let us know how you go.

That's all for this month, so its goodbye from him and goodbye from me.

The two Rons.

**C/o PO Box 2175, Caulfield Junction, VIC 3161*

WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of June 1996.

L21020	MR T N GOODWORTH
L30935	MR A J CALWAY
L30936	MR P SLEEP
L50346	MR H P JOLLY
L50347	MR F HOUSE
L50348	MR J E DAVIES
VK1JA	MR J A HEWSON
VK2BOW	MR J R WATSON
VK2BRZ	MR S J RIGNEY
VK2CJP	MR P H COCHRANE
VK2FHN	MR P MILLER
VK2JFE	MR J F ENTWISTLE
VK2NU	MR G R WALLNER
VK2TIK	MR T M LEE
VK2TJO	MR M J HOWELLS
VK2US	MR K J BELL
VK3FKD	MR K DA SILVA
VK3MAN	MR R SHEPHERD
VK3ZVU	MR Z SVALBE
VK5NMW	MR M R WILLIAMS
VK5PEH	MR R GILL
VK5TAF	MR N R TOMKINS
VK5YH	MR C HAGOORT
VK6NGZ	MR L A TODD
VK6NTN	MR A S KING
VK6YKD	MR K H DIRKSEN
VK8KG	MR K J GLASSON

■ Computers

Getting on the Net

Will McGhie VK6UU leaves his beloved repeaters for a moment and tells of the fun he had connecting to the Internet.*

You might wonder what my experience of getting on the Internet has to do with amateur voice repeaters? The answer is very little, but the story needs to be told, and it may well serve as a help to those of you who are making the move and connecting to the Internet.

Big Mistake

I bought another computer, as the 386 was too slow for many applications, and the new Pentium 100 was all ready to connect to the Internet. I had been looking forward to getting on the Internet for some while. So, with the introduction of an Internet e-mail address for *Amateur Radio* magazine columnists, now was the time to make the move. I signed up with a local Internet service provider for an attractive price. Once the account was set up, next came obtaining the software and setting it up.

The service provider offered to install and set up the software for a small fee. However, my thoughts were, why wait? Why not download the software from a local BBS and have my system up and running that night? Big mistake!!!

The Modem

The first difficulty I found was with the modem. On opening the handbook, out fell a page of text headed "For Australia and New Zealand". This was initialisation details for the modem. The string of letters and numbers sets up the modem for the Australian telephone standard. I loaded the software that came with the modem, and proceeded to type in this long line of initialisation numbers and letters into the box provided. The trouble was that not all the numbers and letters would fit. Once the box was full it would not accept any extra information. What to do with the remaining numbers?

Experimentation eventually showed that not all the numbers and letters are essential and I settled for ATX3. This all took several hours, so the first night of being on the net was not to be. Why the software supplied with the modem would not allow all the initialisation setup to be typed in remains a mystery to me.

The Software

Next came loading *Netscape*, the web browsing software, and *Trumpet Windsock,* the software for dialling. At this point, much of what I had to do was a mystery. I knew enough to be able to have a go but, as it turned out, I was a long way from being anywhere near close. I could dial my service provider but that was it. Nothing happened beyond my phone call being acknowledged by the BBS computer.

Help

Help was required and I gathered all the hardware together and headed to an amateur friend, Greg VK6YEI. Greg's knowledge of computers and getting on the Internet is streets ahead of mine. Greg and I had communicated over the phone in an attempt to sort out the problems but to no avail. It is very difficult to sort out computer problems over the phone!

My attempts at setting up the software were a real mess, and it was decided to use the *Windows 95* software installed on my computer instead. *Windows 95* and the *Windows 95 Plus* pack come with all the software required for the Internet. In order to speed the installation up, we networked my computer and Greg's computer together. After a couple of hours all the software required for the Internet was up and running on my computer. I headed off home.

Networking

As the hour was late I did not turn on my computer until the next day. The computer booted up, but the mouse, even though it could move, would not click on any buttons. The computer would not work in the *Windows 95* operating system. To cut short a long, frustrating, trying-to-find-out-what-was-wrong story, it was discovered that, while the two computers were networked, the installation of the Internet software and configuring the *Windows 95 Plus* pack had not gone as it should. While networked, what was not correct on my computer simply bypassed the problem and used Greg's computer to solve the problem. As soon as the two computers were disconnected from each other, my computer did not work. This had not been tried on the night of the installation. The more I investigated my computer the more problems I found.

Format C:

My computer was by now in a real state of falling apart. So much did not work or worked in strange ways. I decided to start again from scratch and did a reformat C. *Windows 95* and the *Plus* pack were now re-installed on a blank one-gigabyte hard drive.

Windows 95

With the operating software re-installed, Greg talked me through the configuration of the *Windows 95* operating system and the *Plus* pack for Internet operation. It did not work. Once again, to cut several hours down to a few lines, when I had done the reinstalling of *Windows 95* I had not installed the TCP/IP software in *Windows 95*. Even though the *Windows Explorer* net browser requires to be ticked to allow use of the TCP/IP mode, and I had done this, it did not say "you have not installed TCP/IP". This problem sorted out, next came the dial-up script. This script, which is a simple text file, is required to interface with the individual service provider. *Windows 95* provides the software called an Internet jump starter kit. I had not installed this as well, so, under Greg's instruction, I installed this software. However, even though *Windows 95* said it was installed, it was not. The installation is simple in *Windows 95*, simply select install new software from the CD ROM, click on the required tick box and away it goes. *Windows 95* would go through the initialisation process, but the software would not install.

Elton John

It was back to Greg's to sort the problem out yet again. Even with Greg's knowledge of computers we could not install the Internet jump starter kit. *Windows 95* would say it had installed the software even if you replaced the *95* CD with an Elton John music CD! We could not sort out the problem.

A Small Bug

The next day a phone call to Microsoft confirmed that, if you had the OEM version of *Windows 95*, the Internet jump starter kit would not install! I had the OEM version. The bug with the software could be fixed by deleting a file and allowing the *Plus* pack to install the correct file. Finally, armed with this knowledge, installation of the jump starter kit was achieved. This then brought up the Internet scripting icon in *Windows 95*.

However, even with all the software now installed correctly, conflict occurred with the *Windows 95 Microsoft Network*. This software allows connection to this alternate network. It appears to conflict with installation of Internet software. Deleting the Microsoft network software fixed the problem.

Networked Again

I had left my computer at Greg's place, and returned that night to see it all working. At last, stand alone, my computer was on the net!

Greg then asked, "Would you like the latest version of *Netscape 3*?". "Sure would," I replied. This version of Netscape is about six megabytes, so it was either zip the file over on several disks, or network the computers together. We networked the computers again, using Interlink. The networking did not work. It had worked before but refused to work this time.

Two hours later we discovered, instead of connecting the two computers together via the parallel ports, we had connected Greg's computer into my scanner port. My printer parallel port and my scanner port both use the same sex 25 D connectors. A simple mistake, but we had wasted two hours.

Now, with the computers correctly connected together, the network software would still not work! The scanner port is a plug-in board which also supplies power to the scanner. You guessed it, Greg's parallel port had been fried! This problem aside, *Netscape 3* was copied over using floppy disks. *Netscape 3* was successfully installed and tested. After five weeks of frustration all appeared to be working.

Five Weeks

A lot was learned over these five weeks. Perhaps having your service provider install the software was the best lesson learned, but I did learn a lot about setting up a computer using *Windows 95* for the Internet.

Not knowing what software was required for the Internet does make the process very difficult. My understanding is you require four basic software components. They are, a net browser, TCP/IP, scripter, and dialler. Failure to have these basic elements installed, and set up correctly, results in the system not working.

Is it just me, or are instruction manuals for computers and computer software written in such a way as to be difficult and misleading? It is almost as if the instructions are written to overload you with detail but not tell you the basic, most important bits. I have read many articles on the Internet but have not been lucky enough to come across one that puts all these basic elements into perspective. If you don't know what is required when setting up software on your computer you have no chance of being successful.

I hope some of these ramblings will be of use to some of you, not the least making you aware of the difficulty of setting up *Windows 95 Explorer* to run on the Internet. Several aspects of the problems I had still remain a mystery, but it is running, thanks to Greg VK6YEI. Without his considerable help I would have given up long ago and had the service provider install the software.

Fantastic!

As a footnote, my early experience of the Internet is fantastic. I had seen it briefly before, but now, with time to look around and learn, it really is something. For example, I have been listening to broadcast radio stations live from all around the world (that's right, live!) while roaming through the most incredible amount of information, all displayed with the most colourful presentation. As at the time of writing I have not yet connected to amateur radio repeaters that are on the net. Yes, you can connect to amateur repeaters and talk via the Internet to these systems. I have the software, downloaded from the Internet, but not the time to try it out as yet.

**21 Waterloo Crescent, Lesmurdie 6076*
VK6UU @ VK6BBR
will@vale.faroc.com.au

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VK QSL BUREAUX

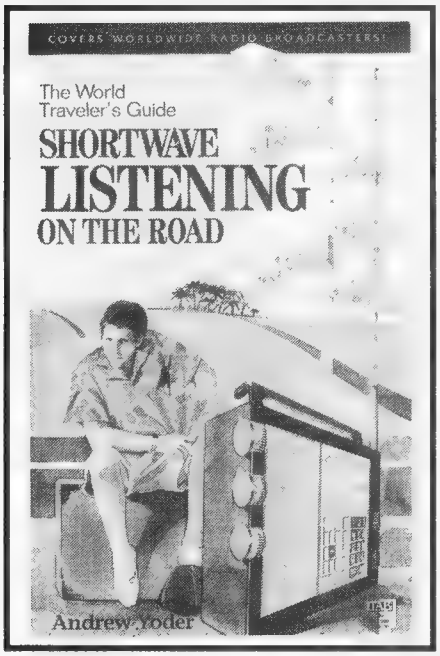
The official list of VK QSL Bureaux. All are Inwards and Outwards unless otherwise stated.

VK1		GPO Box 600 CANBERRA ACT 2601
VK2		PO Box 73 TERALBA NSW 2284
VK3	Inwards	Box 757G, GPO MELBOURNE VIC 3001
	Outwards	40G Victory Blvd ASHBURTON VIC 3147
VK4		GPO Box 638 BRISBANE QLD 4001
VK5		PO Box 10092 Gouger St ADELAIDE SA 5001
VK6		GPO Box F319 PERTH WA 6001
VK7		GPO Box 371D HOBART TAS 7001
VK8		C/o H G Andersson VK8HA Box 619 HUMPTY DOO NT 0836
VK9/VK0		C/o Neil Penfold VK6NE 2 Moss Court KINGSLEY WA 6026

■ Book Review

The World Traveler's Guide Shortwave Listening on the Road

Publisher: *TAB Books Division of McGraw-Hill*
Author: *Andrew Yoder*
Reviewed by: *Danny Vits VK3JDV*



Listening to shortwave broadcast stations on HF is still as popular as ever, despite the instant access information facilities on TV, computer infonets, BBSs, satellites, etc. Somehow, it gives the feeling of greater immediacy and reliability, and is apparently unaffected by the need to return high ratings.

Many amateurs in the past, and still some today, had their first introduction to the world of HF by turning the dial on the shortwave bands. This is made a lot easier today as most HF transceivers now incorporate a general coverage receiver.

The World Traveler's Guide – Shortwave Listening on the Road is not aimed at the radio amateur, but at anyone with an interest in listening to broadcast stations world-wide. In particular, it is for those travelling abroad wishing to stay in touch with home, or who are keen to explore other points of view.

The book offers a brief description of propagation, followed by a brief, but excellent, review of currently available, mostly portable, equipment. It even includes a review of equipment available for the shortwave-listening motorist.

Then follows a comprehensive listing of shortwave broadcasts in English, beginning with Albania and ending with Zimbabwe, including newcomers such as Moldova and Tajikistan. This section, which includes times and frequencies, is the core of the book, which is well worth buying for this feature alone. Although a lot of this information dates fairly quickly, it is surprising how many countries "adopt" certain frequencies. I have been listening to the BBC on 6195 kHz for as long as I care to remember.

Various appendices offer additional useful information such as comprehensive standard and summer time charts, line phase and voltages for countries around the world and, finally, a long listing of world-wide BBSs.

All in all, good value at the RRP price of $24.95. **ar**

■ History

A Visit to Newt W1BCR

George Cranby VK3GI remembers a meeting 33 years ago with a well-known ham of the day.*

The year was 1963 and my call had, one year previously, been changed from VK7GC to VK3GI. I was in the USA on business and had to spend about three weeks in Bristol, Rhode Island, the nearest biggish town to Newt's QTH. Having worked him from VK7 and VK3 many times, I called him on the 'phone and was promptly invited for a bite and a chat.

Despite having been given what appeared to be a very detailed route description, it took me some time to find Newt's QTH. The house in which he, a bachelor, lived all by himself, stood on top of a cliff overlooking, in a westerly aspect, the sea about 60 m below. A large telegraph pole stood next to the house and two further poles were positioned in the shallow water below. These poles carried an inclined V-beam with, if memory serves me right, about 150 m of wire (could have been more) in each arm and pointing directly to Australia.

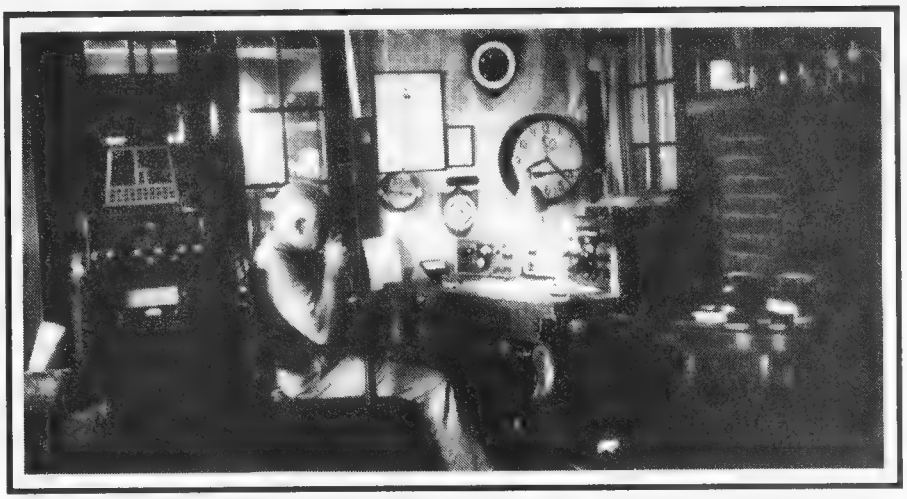
The house, as can be expected from an elderly bachelor, was thoroughly untidy, full of all manner of things such as chairs, tables, saucepans and crockery. The main and well set up items, however, were pieces of radio gear.

They comprised, among others, two complete sets of Collins gear, a Viking "Valiant" (anyone remember that) plus, in an adjacent room, a linear amplifier which Newt was not disposed to display. From the size of the visible parts, and the glow of the filaments, one could only deduce that the legal power limit was of no concern to Newt!

After a wondrous meal of perfectly cooked monster steak, salad and hash brown potatoes (then only known to people who had been to the USA – delicious), followed by strawberries and cream and big cups of coffee, we settled down to some operating.

In full accordance with Murphy's law the air was dead; we heard one weak Australian station, but no go. However, Newt eventually managed to hook up with an amateur on board a US aircraft carrier.

Now, Newt had been very popular with the Navy, having been their mainstay for third party traffic during the war (Newt had



The late Newt W1BCR in his shack.

been ineligible for war service due to some respiratory difficulty). After the war he had been presented with a gold pass giving him access to Navy Officers' messes all around the globe.

He asked the ham, a young sub-lieutenant, the name of his commanding officer, which turned out to be an Admiral Bill Collins. "Get me Bill to the mike", Newt demanded. One could almost hear the poor fellow on the other end shake in his boots. No, he couldn't possibly disturb the Admiral, who was having dinner! So Newt said,"just tell him that uncle Newt wants to talk to him". Two minutes later Admiral Bill Collins was on the mike!

After a little chat and the exchange of some pleasantries, he asked Newt to pass on some messages to his (the Admiral's) wife with details of his ETA home. After a ten minute chat, the Admiral returned to his dinner.

Talking to Newt of his early days in ham radio, it emerged that the origin of his oversize V-beam was a bet. Long before the war Newt said to a ham friend that one of these days he would talk to Australia, wherever that was, and his friend bet him that he couldn't. Newt, of course, eventually won the bet by constructing his enormous V-beam directed towards Australia. As old-timers will remember, he knew most Australian callsigns and names by heart.

Newt was a very lonely man and I guess that ham radio gave him the friends and human contacts that were missing from his life. I am happy to have been one of them.

*PO Box 22, Woodend VIC 3442

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■ Try This

Use of IC-735 HF Transceiver for QRP Operation

Simon Buxton VK2EII describes a neat outboard unit to enable QRP operation.*

Others may be interested in this simple project to use an IC-735 or IC-731 HF transceiver for QRP work, as it took a fair amount of investigation to find out what to do and then make it work.

These rigs normally operate with a power output in the range of 10 to 100 watts which is controlled by means of a slider on the front panel. There is also an internal switch which halves the power output. I had heard of these rigs being used for QRP and, after enquiries to ICOM Australia and other sources who could offer no help beyond what was in the manual, I was finally advised by ICOM support in the US via the Compuserve network, what to do.

They suggested using the external ALC connection on the ACC(2) socket at the rear of the set where a voltage from -4 to 0 volts would control output from zero to the power level set on the front panel. ACC(2) is a 7 pin socket used to connect to an automatic ATU (the 8 pin ACC(1) socket could also be used as it contains similar connections but note that the pins are different).

My first attempt at this, using only a potentiometer across an external battery, gave only full power or nothing. A later attempt got it right. The voltage controlling the power is very sensitive and on my IC-731, only a small change of 0.1 volt or so in the region of 1.5 volts changes the output from zero to the set amount.

The circuit is shown in Figure 1. A value of three volts seems adequate to supply the voltage (as polarity is reversed, the internal supply cannot readily be used), whilst the 12 k resistors allow the 5 k linear potentiometer to operate over only a small voltage range. You may need to experiment with the resistor values to ensure that the potentiometer covers the control range required for your rig.

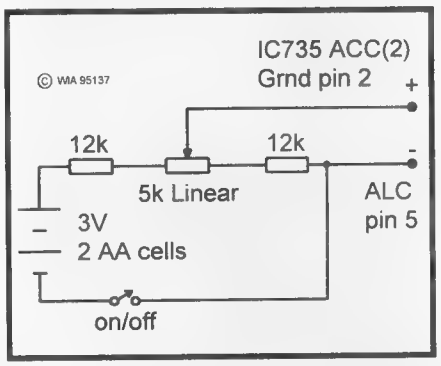

Figure 1 – Circuit of the outboard unit used to enable QRP operation of the IC-731 and IC-735 transceivers.

This circuit allows smooth control of power from 0 to 10 watts, with the front panel setting at minimum power. The output power can be read from either the P/O range on the rig's meter or from an external SWR/PWR meter in the antenna lead.

The unit may be built into a small PCB box and left connected to the rear socket, switching it on as required.

*104 Cameron Street, Edgecliff NSW 2027

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ALARA

Sally Grattidge VK4SHE, ALARA Publicity Officer*

ALARAMeet

YLs from all States, and several countries, are on the road heading for Perth for the big get-together on 28 and 29 September. If you find yourself in the area at this time, or make a last minute decision to be there, don't forget to contact Bev VK6DE. Most of the activities have been booked ahead, but there may be some you can join at short notice; there will certainly be opportunities for you to meet those attending, and that is really what it is all about. Watch for cars flying black and gold ribbons and be sure to give them a wave.

New Subscriber

Graham VK4BB who will now be able to keep the VK4 news broadcast well informed of ALARA's activities.

Novice Contest

Bev VK4NBC, previous winner of the WIA VK Novice Contest, had a go again this year making a respectable 171 contacts, but missed out on first prize. Well done, Bev. I wonder how many other YLs were there or, like me, do they find out about contests after the event. No excuse, as they are well publicised in *Amateur Radio.*

DRLs

The District Radio Ladies are active as usual in the Rockhampton area and enjoyed a hot dish night on 8 June. Robyn VK4RL keeps the group together and involved, showing what can be done by one enthusiastic person and a small band of willing helpers. This group has its own T shirt, badge and net (first Thursday of the month at 8.30 pm local time on 3565 kHz).

Activity Days

The sixth of each month is a YL Activity Day, and YLs are invited to listen on the hour or call CQ YL on 14.288, 21.188 and 28.588 MHz. When first learning about ALARA, I listened and called a few times without much luck, and then forgot about it. I wonder if other YLs have done the same. As conditions improve, perhaps we should make an effort to revive the Activity Days. Listen and call on the frequencies to see who is there. Maybe a group could choose a time and band and have a monthly sched on the sixth of each month, inviting other YLs to join them, as checking the bands every hour can be tedious and it is easy to miss someone else doing the same.

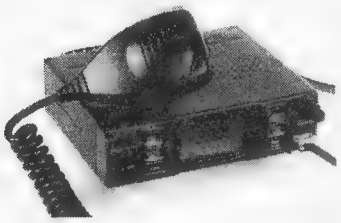
Ooops!

While writing this, it occurred to me that ALARA's birthday must be fairly soon. It is, that is it was at the time, but by the time you read this the event will have passed. The official birthday is 26 July with a birthday net on the nearest Saturday - so next month I should be able to tell you about the net.

No News is Good News?

Maybe, but it makes for a very boring column. Something must be happening out there of interest to radio YLs, so please let me know about it via the above address or packet radio. Anything of interest to YLs will be most welcome - it does not have to relate to ALARA.

**C/o PO Woodstock, QLD 4816*
Tel: 077 788 642



Radio and Communications
incorporating radio and CB Action

Published by
ACP SYME MAGAZINES,
PO Box 119,
Oakleigh,
Vic 3166
(03) 9567 4200

Fancy a trip to Dayton? Read August's **RADIO and COMMUNICATIONS** magazine to find out how to join us on the trip of a lifetime! How about a mountain of free radio gear? This month you could win a Kenwood TS-50S or a Yaesu FT-51R, and that's just for starters! There's also a TET-Emtron TE-33 beam, HamLog computer software, and more.

But a radio magazine is much more than simple give-aways. Feast your eyes on these quality articles...

- Review: Yaesu FT-8500 — what penalty should you pay for fantastic RF performance? Usability?
- Construction project — build a simple Armstrong Rotator and mast... from an old bike!
- Review: Icom IC-681. No, it's not a sawn-off 781, it's a six metre FM monobander, and it's cheap!
- Buying second-hand. What are the greatest bargains in the used stakes? VK2GJH investigates.
- Ever needed a new NiCd for the HT? Not cheap, eh? We review a fantastic $150 alternative.
- QRP. Are you mad?! Even at the bottom of Cycle 22, QRP can be absorbing. Read *Here and There.*
- Amateur modifications, *three* DX columns and more... all the best regulars every month!

Don't miss out — **RADIO and COMMUNICATIONS** is great reading for amateurs!
Check your local newsagent today!

(PS. We also have the biggest collection of radio-oriented Classified adverts in the country. There's lots of them because they *work* so well. We have yet more great bargains for you to drool over — but hurry, these rippers go *fast*!)

AMSAT Australia

*Bill Magnusson VK3JT**

National co-ordinator
Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI
AMSAT Australia net:
Control station VK5AGR
Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/- QRM.

AMSAT Australia newsletter and software service
The newsletter is published monthly by Graham VK5AGR. Subscription is $30 for Australia, $35 for New Zealand and $40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Six Monthly Amateur Radio Satellite Frequency and Mode Update

Here is a list of current amateur radio satellite frequencies and modes. Again I have kept the list minimal by (1) removing all reference to satellites that are defunct and (2) listing only the mode A transponders on the three most popular Russian RS satellites.

The full transponder list for the RS satellites is long and somewhat repetitive. If you are an RS satellite buff you can refer to the January 1995 column for full details of all the transponder frequencies and modes for that series.

Preliminary Keps for Phase 3D

This set of keps was published in the *AMSAT Journal* Vol 19/2. It relates to the position of Phase 3D immediately after the second motor firing to insert it into its (almost) final orbit. Please note that after this firing its inclination will drift slightly north to finally rest at 63.43 degrees. At this inclination the final motor firing will take place to stabilise the satellite in that orbit.

Phase 3D will have a 47,000 km by 4,000 km orbit resulting in a 3x2 repetition rate. It will do one revolution each 18 hours or three revs in two days. The orbits should follow this pattern very closely. Place these keps into your tracking program to get an idea of the orbit and the communication potential of Phase 3D.

Satellite:	AMSAT P3D
Catalog number:	99934
Epoch time:	96 260.25523447
Element set:	3
Inclination:	60.0203 deg
RAAN:	342.7876 deg
Eccentricity:	0.6752895
Arg of Perigee:	180.1221 deg
Mean Anomaly:	179.5089 deg
Mean Motion:	1.51063968 rev/day
Decay Rate:	2.00000e-008 rev/day/day
Epoc rev:	2

**RMB 1627, Milawa VIC 3678*
CompuServe: 100352,3065
Internet: 100352.3065@compuserve.com

ar

Satellite	Uplink (MHz)	Downlink (MHz)
OSCAR 10 (AO-10)		
General Beacon (Carrier only)		145.808 (approx)
Mode B (SSB,CW-Inverting)	435.030-435.180	145.825-145.975
Do NOT use the transponder if the beacon signal is "FM-ing" due to poor sun angles.		
This satellite is no longer under ground control.		
OSCAR 11 UoSAT-2 (UO-11)		
Beacon (1200 AFSK,FM) telemetry/bulletin		145.826
Beacon (1200 AFSK,FM)		435.025
Beacon (1200 AFSK,FM)		2401.500
Radio Sputnik 10 (RS-10)		
Mode A (SSB,CW-Inverting)	145.86-145.90	29.360-29.400
Beacon/Robot (CW)		29.357
Beacon/Robot (CW)		29.403
Robot Mode A (CW)	145.82	29.357 or 29.403
Radio Sputnik 12 (RS-12)		
Mode A (SSB,CW-Inverting)	145.91-145.95	29.410-29.450
Beacon/Robot (CW)		29.408
Beacon/Robot (CW)		29.454
Robot Mode A (CW)	145.831/.840	29.408 or 29.454
AMSAT-OSCAR-13 (AO-13)		
General beacon (400b PSK, CW, RTTY)		145.812
Engineering Beacon (400b PSK MA 0 to MA 40)		145.985
Mode B (SSB,CW-Inverting)	435.420-435.570	145.825-145.975
Mode S (SSB,CW,FM)	435.601-435.639	2400.711-2400.747
Mode S Beacon (PSK)	2400.664	
Radio Sputnik 15 (RS-15)		
Mode A (SSB,CW non-invert)	145.858-145.898	29.354-29.394
Beacon (CW)		29.352.5
AMSAT-OSCAR-16 (AO-16) Callsign = PACSAT		
Mode J (1200 BPSK BBS,FM-SSB)	145.90/92/94/96	437.025 or 437.050
Mode S (1200 BPSK BBS,FM-SSB)		2401.1 or 2401.1428
AMSAT-OSCAR-17 (DO-17) (Dove)		
Beacon 1 (1200 bps AFSK,Digital Voice,FM)		145.82516
Beacon 2 (1200 bps AFSK,Digital Voice,FM)		145.82438
Beacon 3 (1200 BFSK,Digital Voice,SSB)	2401.2205	
AMSAT-OSCAR-18 (WO-18) (Webersat)		
Mode J (1200 BPSK,RC,SSB)	144.30-144.50	437.075 or 437.10
ATV (TV,AM)	1265.000	
AMSAT-OSCAR-19 (LO-19) Callsign = LUSAT		
(1200 PSK,FM-SSB)	145.84/.86/.88/.90	437.15355 or 437.1258
FUJI-OSCAR-20 (JAS-1b) (FO-20) Callsign = 8J1JBS		
Beacon JA (CW,Analog)		435.795
Mode JA (SSB,CW)	145.90-146.00	435.80-435.90
Beacon JD (CW)		435.910
Mode JD (1200 BPSK,FM-SSB)	145.85/.87/.89/.91	435.910
UoSAT-OSCAR-22 (UO-22)	**Broadcast Callsign**	**= UoSAT5-11**
	BBS Callsign	**= UoSAT5-12**
Mode JD (9600 Baud FSK,FM)	145.90/.975	435.120
KITSAT-OSCAR-23 (KO-23)	**Broadcast Callsign**	**= HL01-11**
	BBS Callsign	**= HL01-12**
Mode JD (9600 Baud FSK,FM)	145.85/.90	435.175
KITSAT-OSCAR-25 (KO-25)	**Broadcast Callsign**	**= HL02-11**
	BBS Callsign	**= HL02-12**
Mode JD (9600 Baud FSK,FM)	145.870	436.500
ITAMSAT-OSCAR-26 (IO-26)	**Callsign = ITMSAT**	
Mode JD 1200 baud PSK	145.875	435.867
	145.900	435.822

As always, the list is as accurate as I can determine at the time of writing. Please let me know of any errors or omissions.

Awards

*John Kelleher VK3DP - Federal Awards Manager**

A high percentage of my active "customers" have realised DXCC totals in excess of 275 "countries". Talk around the bands has been about the bottom of the current cycle 22, and if it will ever improve. Those last 30 odd DXCC countries are the most elusive, probably because the core of DXpeditioners are of the opinion that, under the present ionospheric conditions, such expeditions would be dismal failures.

From the pages of the latest DXCC yearbook, here is a list of the 45 most wanted "countries".

1. P5 North Korea.
2. E3 Eritrea
3. VK0 Heard Island.
4. 7O Yemen
5. A5 Bhutan
6. Z3 Macedonia
7. 5A Libya
8. VU Andaman & Nicobar Islands.
9. T9 Bosnia & Herzegovina.
10. FR/T Tromelin Island.
11. OK Czech Republic.
12. VK0 Macquarie Island.
13. SV/A Mount Athos.
14. ZL8 Kermadec Island.
15. OM Slovak Republic.
16. FR/G Glorioso Island.
17. VU Laccadive Islands.
18. 3V8 Tunisia.
19. ZS8MI Prince Edward & Marion Islands.
20. ZL9 Auckland & Campbell Islands.
21. 3B7 Agalega & St Brandon Islands.
22. 3Y Bouvet Island.
23. FR/J Juan de Nova, Europa.
24. FT5W Crozet Island.
25. FT5Z Amsterdam & St. Paul Islands.
26. TN Congo.
27. VP8 South Georgia Island.
28. TT Chad.
29. 3C0 Pagalu Island (Annobon).
30. FT5X Kerguelen Island.
31. PY0 St Peter & Paul Rocks.
32. 9U Burundi.
33. XW Laos.
34. XZ Burma (Myanmar).
35. PY0 Trinidade & Martin Vaz Islands.
36. HK0 Malpelo Islands.
37. 9A Croatia.
38. ST0 South Sudan.
39. S5 Slovenia.
40. T31 Central Kiribati.
41. KH5K Kingman Reef.
42. 3D2 Conway Reef.
43. 5R8 Madagascar.
44. S2 Bangladesh.
45. VP8 South Orkney Islands.

This list does continue on to the 100 most wanted countries, but space precludes total publication. This list, however, should only serve as a guide to those who are interested. A quick survey of the above list shows that the "most wanted" are predominantly islands and, as such, will require the services of DXpeditionary groups.

The Bulgarian Federation of Radio Amateurs (BFRA) provides an interesting Awards program of six attractive certificates which are available to all amateurs throughout the world for two-way contacts or SWL reports on CW, SSB/AM, or mixed. Applications should take the form of a GCR list, verified by two licensed amateurs or local Club authorities, specifying stations worked, date, time (UTC), band and mode, together with a fee of 10 IRCs, or equivalent, to: BFRA Award Manager, PO Box 830, 1000 Sofia, Bulgaria.

Republic of Bulgaria Award

For this certificate, QSOs/SWL reports after 1 January 1965 are valid. Applicants from DX countries will be required to make 20 QSOs with different LZ stations, 10 with LZ1/3/5 and 10 with LZ2/4/6 irrespective of the band worked.

The Five Band LZ Award

QSOs/SWL reports after 1 January 1979 are valid. A total of 10 QSOs is required. One QSO with LZ1/3/5, and one QSO with LZ2/4/6 on all bands (3.5, 7, 14, 21 and 28 MHz).

The W 100 LZ Award

QSOs/SWL reports after 1 January 1979 are valid. 100 QSOs with different LZ stations during one calender year are required.

When you buy something from one of our advertisers, tell them you read about it in the WIA *Amateur Radio* magazine

The W 28 Z ITU Award

QSOs/SWL reports after 1 January 1979 are valid. Confirmed contacts/reports with the following countries from ITU Zone 28 are required: DL, HA, HB9, HB0, HV, I, IS0, LZ, OE, OK, OM, SP, SV, SV5, SV9, SY/A, S5, TK, T7, T9, YO, YU, ZA, Z3, 9A, 9H and 4U1ITU.

The award will be issued in three classes: Class 1, 28 QSOs with different stations in 20 countries; Class 2, 28 QSOs with different stations in 16 countries; and Class 3, 28 QSOs with different stations in 10 countries. In addition, five QSOs with different LZ stations are required for each class.

The Black Sea Award

QSOs/SWL reports after 1 January 1979 are valid. 60 QSOs/SWL reports with different amateur stations located in countries bordering the Black Sea are required. An additional condition is that a minimum of one QSO/SWL report is required with each of the following countries: LZ, TA, YO, UA6, and US.

The Sofia Award

QSOs/SWL reports after 1 January 1979 are valid. 100 points for contacts with amateur stations situated in Sofia, the capital city of Bulgaria, are required. Calculation of the points should be made from the following table:

For applicants from	**3.5**	**7**	**14**	**21**	**28**
Europe:	2	2	1	2	2
Other continents:	15	5	1	2	3

Each station may be worked/reported once per band irrespective of the mode.

Now, a little gem I found amongst the archives. One to paste on the wall when G land is again heard.

Radio Club of Thanet - The Seaweed Award

This award is available to all amateurs and SWLs on any band or mode. Six points are required, two points for G2IC and one point for Seaweed members, from the following: G0OPL, G4GUD, G4RNJ, G4PTE, G4SBD, G0ABY, G0AHA, G0CBY, G0CEY, G0CTQ, G0FTB, G0HWG, G0JIF, G0IQW and G0NVC. The fee is one pound sterling, or five IRCs, or $6.00, plus a large SAE for DX applicants.

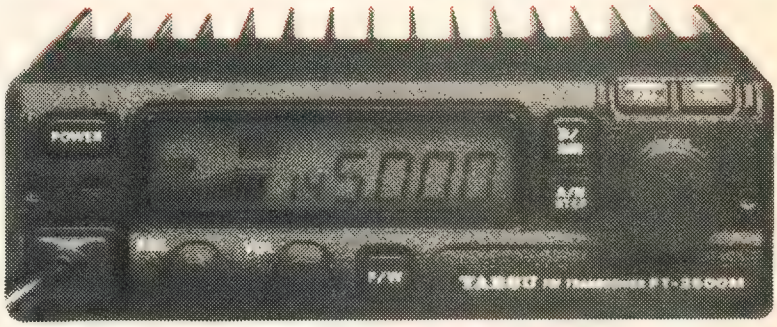
The Radio Club of Thanet conducts nets during the English summer at 0800z and winter 0900z on 28.845 MHz. Also the first Friday in the month at 1400z on 7.070 MHz and the third Friday at 1400z on 28.445 MHz. The Awards Manager is G0CBY QTHR.

DICK SMITH ELECTRONICS

2m MIL-SPEC Tough Mobile Transceivers

Have a look at these 2 new models from Yaesu.

FT-2500M 2m Heavy-Duty Transceiver



Built tough to take the rough stuff. The FT-2500M meets US MIL-SPEC 810c for shock and vibration so it'll provide years of reliable mobile operation. It sports a new easy-to-operate front panel design that has rubber coated knobs to keep the dust out. There is also a huge 'Omni-Glow' LCD screen that is teamed up with a one-piece diecast chassis to set the FT-2500M apart from all other 2m mobiles.

For improved front-end performance, Yaesu's exclusive 3-stage Advanced Track Tuning feature and dual-FET mixer reduce overloads from strong signals while providing excellent sensitivity and wide-band receive operation.

Also includes:

- 31 tuneable memories
- Inbuilt CTCSS encoder
- 7 selectable tuning steps
- Various scanning modes
- MH-26 hand microphone
- Mobile bracket and DC power lead.

Specifications:

Frequency range:	Tx 144-148MHz Rx 140-174MHz
Output power:	50W, 25W, 5W
Sensitivity:	Better than 0.2uV for 12dB SINAD
Dimensions:	160 x 50 x 180mm (WHD)

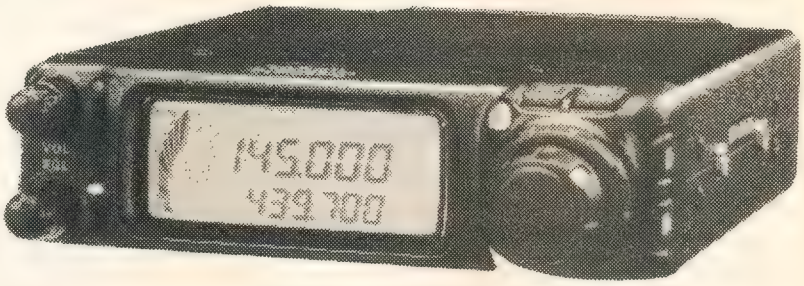
Cat D-3632

$699

YAESU

2 YEAR WARRANTY

FT-3000M 70W 2m Mobile



An amazing new 2m mobile transceiver with up to 70W RF output. Rock solid with MIL-STD - 810C shock and vibration resistance. The FT-3000M also has wide band receiver coverage (110-180 and 300-520MHz), a dual band or dual in-band receiver facility and 1200/9600 baud Packet socket. Up front it has an impressive back-lit alphanumeric LCD screen. The FT-3000M has a total of 81 memories, as well as a Spectrum Scope mode that allows you to view activity above and below the current operating frequency, or among six programmed memories. A programming menu holds over 50 transceiver settings for easy "set and forget" access, and includes a scrolling text Help Guide. Twin fans provide optimum cooling during long transmissions for greater component reliability. The FT-3000M is supplied with an MH-42A6J hand microphone, DC power lead, and instruction manual.

Specifications:

Frequency range:	Tx 144-148MHz, Rx 110-180, 300-520, 800-824, 849-869, 894-999MHz
RF Output:	70, 50, 25, 10W
Sensitivity:	0.2uV (main Rx), 0.25uV (sub Rx)
Dimensions:	140 x 40 x 180mm (WHD)

Cat D-3700

$799

2 YEAR WARRANTY

YAESU

For further information, orders or the location of your nearest store call:
1300 366 644 (Local Call Charge) Or Fax: (02) 805 1986

Small, Simple, Powerful

"... a great little radio." R&C June 96

The exciting new FT-51R is Yaesu's third generation 2m/70cm dual-band FM hand-held, with more features and even easier operation than ever before, and all in a size that fits comfortably into the palm of your hand. Its tough polycarbonate front panel and diecast rear casing combines cellular styling with professional grade ruggedness for reliable everyday use, while its new dual-processor design provides really useful new functions such as a Spectrum Scope and scrolling Help messages.

Measuring just 123 x 57 x 26.5mm (H.W.D), the FT-51R provides 2m/70cm Amateur transmit coverage, plus extended receiver coverage of 110-180MHz and 420-470MHz, with selectable AM for Airband reception. The FT-51's two receivers allow flexible VHF+VHF, UHF+UHF, or VHF+UHF operation, while the efficient FET technology provides 2.0W RF output on 2m and 1.5W output on 70cm from the supplied 4.8V 600mA/H Nicad battery pack. Up to 5 selectable Tx power levels are available (including an economy 20mW level), with 5W RF output available when using an optional 9.6V battery pack or mobile power adaptor.

To find local activity easily, the FT-51R's "Spectrum Scope" provides a visual indication of nearby busy frequencies, so you can keep an eye on whether a repeater or simplex channel may be in use. The Spectrum Scope can also be used in memory mode, and will even give an indication of signal strength. In addition to twin VFOs per band, the FT-51R also provides up to 120 memory channels, and alpha-numeric names (eg. repeater locations or callsigns) can be stored instead of a frequency if required.

For very straightforward operation the FT-51R provides scrolling User Help text messages that guide you through most function settings, as well as a selectable Auto Repeater Offset function to suit the Australian band plans. Other features include a range of battery life extenders (Auto battery saver, TX Save and Auto Power Off), CTCSS encode and decode, extensive DTMF-based selective paging, seven selectable frequency Step sizes, and an LCD voltmeter so you can monitor battery performance under load and estimate remaining battery life.

The FT-51R is supplied with a 600mA/H Nicad pack, AC charger, belt-clip, and an efficient hand-held antenna. To learn more about this exciting new transceiver, why not ask for a copy of our colour brochure and 8-page colour Product News booklet, or visit your local Ham store for a demonstration.
Cat D-3622

FT-51R shown actual size

$899

YAESU

B 2496

DICK SMITH ELECTRONICS

MAJOR AMATEUR STOCKISTS STORES: NSW • North Ryde **9937 3355** • Sydney City York St **267 9111 VIC** • Melbourne City - 246 Bourke St **9639 0396** • Springvale **9547 0522 QLD** • Underwood **3341 0844 SA** • Adelaide City Pulteney St **232 1200**

WIA DXCC

Phone

Honour Roll

Callsign	Countries
VK5MS	328/381
VK5WO	328/360
VK6LK	328/352
VK3QI	328/341
VK4OH	328/334
VK5QW	328/333
VK3DYL	327/332
VK6RU	326/380
VK4KS	326/372
VK4LC	326/372
VK6HD	326/350
VK4RF	326/344
VK3AKK	326/337
VK1ZL	326/331
VK2FGI	326/331
VK5XN	325/345
VK4UA	325/338
VK5EE	322/327
VK6NE	321/336
VK3AMK	319/337
VK2AVZ	318/326
VK3YJ	318/323
VK3CSR	317/325
VK3OT	315/327
VK2DEJ	315/320

General Listing

VK7BC	314/323
VK4AAR	314/317
VK6AJW	312/317
VK6VS	312/315
VK6PY	307/312
VK5WV	306/325
VK3RF	304/311
VK6RO	302/307
VK3JI	298/312
VK4DP	294/305
VK2WU	292/296
VK4BG	287/302
VK3CYL	283/290
VK3DU	282/290
VK5OU	281/286
VK4OD	276/279
VK3VU	272/275
VK3GI	264/267
VK3VQ	259/276
ZS6IR	259/262
VK3DP	252/255
VK4QO	251/255
VK2PU	244/247
VK6YF	238/241
VK2CKW	234/237
PS7AB	233/237
VK4SJ	231/
VK4CY	227/228
VK3DS	226/336
VK2ETM	226/227
VK5IE	219/221
VK5BO	218/222
VK3CIM	218/221
VK3UY	217/217
VK6APW	216/217
VK3DD	214/217
VK4ICU	211/213
VK4XJ	204/216
VK3DVT	201/203
ON6DP	200/202
VK4KRP	199/201
VK2VFT	198/201
VK4DDJ	198/198
VK4LV	194/196
VK4AU	190/190
VK6BQN	186/190
VK4BAY	177/179
KA1TFU	176/179
WA1MKS	171/
VK7TS	170/171
VK2BQS	162/165
VK4IL	161/
VK2NO	157/
VK4IT	153/154
VK4CHB	152/153
7J1AAL	149/150
VK4ARB	149/150
VK4DMP	147/148
VK3DNC	141/142
VK3DQ	141/
VK2SPS	139/141
VK6LC	139/140
VK2EQ	139/
VK6LG	135/135
TI2YLL	129/
VK4EJ	125/127
LU5EWO	125/
SM6PRX	122/126
VK3TI	122/125
VK7WD	115/116
VK3BRZ	114/116
VK4VIS	113/115
VK4NJQ	111/115
VK6NV	111/113
VK5GZ	108/110
VK4LW	105/
VK5UO	104/106
N4JED	104/105
VK3EHP	103/105
JN6MIC	103/104
VK4BJE	102/104
JH3OHO	101/103
VK2CMV	100/102
VK5CJE	100/102
VK6APH	100/101

CW

Honour Roll

Callsign	Countries
VK3QI	328/339
VK6HD	324/344
VK3XB	315/349

General Listing

VK5WO	307/322
VK4RF	306/332
VK3KS	301/328
VK6RU	275/319
VK3JI	267/291
VK3AKK	267/272
VK3DQ	245/
VK4LV	233/240
VK3DP	232/235
VK7BC	230/239
VK2CWS	222/224
VK4DA	221/223
VK3CIM	212/213
VK4DP	205/216
VK4OD	192/195
VK6PY	191/194
VK6MK	188/190
VK4ICU	183/
VK5GZ	172/174
VK6HW	166/169
VK4CY	165/
VK5BO	159/184
VK3DNC	154/157
VK5UO	154/155
VK4XJ	150/163
VK4UA	143/155
EA6AAK	138/
VK7DQ	137/138
VK4KS	126/134
VK7TS	125/
VK4AAR	124/126
VK2TB	123/125
VK3AGW	119/120
VK4CMY	117/119
VK5BWW	110/111
VK5QJ	107/109
VK2FYM	106/108
VK8KV	102/103
VK2CXC	101/103

Open

Honour Roll

Callsign	Countries
VK5WO	328/364
VK3QI	328/342
VK5QW	328/332
VK6RU	326/380
VK4KS	326/372
VK4RF	326/361
VK6HD	326/351
VK3AKK	326/337
VK4UA	325/340
VK3JA	324/371
VK3AMK	322/340
VK7BC	319/327
VK3OT	318/330
VK3XB	317/346

General Listing

VK4AAR	314/317
VK3JI	311/339
VK4DP	310/323
VK6PY	309/316
VK6RO	308/313
VK3DP	299/302
VK4BG	294/312
VK4OD	287/290
VK3CYL	283/290
VK3VQ	274/291
VK4CY	272/275
VK3UY	272/274
VK5BO	264/301
VK3DQ	262/
TF5BW	260/264
VK3CIM	252/255
VK4LV	251/258
VK2ETM	239/240
VK5UO	238/241
VK4ICU	238/240
VK4XJ	233/249
VK2CWS	228/230
VK6APW	223/224
VK4DA	222/224
WA5VGI	216/218
VK2VFT	202/205
VK7TS	201/202
VK6MK	194/196
VK3DNC	185/187
VK5GZ	182/184
VK2BQS	176/179
PR7CPK	174/175
VK6NV	165/166
VK4CHB	160/162
VK2NO	158/
VK2CXC	150/152
VK6LC	142/144
VK2SPS	140/142
VK4NJQ	133/139
VK4EZ	129/138
YB8GH	127/129
VK7HV	114/117
VK5BWW	111/112
VE7BS	106/107
VK3COR	102/104
VK3VB	102/104
SM7WF	101/

RTTY

Callsign	Countries
VK3EBP	210/212
VK2BQS	115/117

**PO Box 2175 Caulfield Junction 3161*

ar

Contests

*Peter Nesbit VK3APN - Federal Contest Coordinator**

Contest Calendar Aug – Oct 96

Aug 3	Waitakere 80 m CW Sprint	(June 96)
Aug 3	West Australian Annual Contest (CW)	(June 96)
Aug 3/4	YO DX Contest	
Aug 10/11	Worked All Europe (CW)	(July 96)
Aug 17/18	Remembrance Day Contest	(July 96)
Aug 17/18	Keyman's Club of Japan (CW)	(July 96)
Sep 1	Bulgarian DX Contest	
Sep 1	Panama Anniversary Contest (SSB)	
Sep 7/8	All Asia DX Contest (Phone)	(May 96)
Sep 14/15	Worked All Europe (Phone)	(July 96)
Sep 21/22	SAC DX (CW)	
Sep 28/29	SAC DX (Phone)	
Sep 28/29	CQ-WW RTTY DX Contest	
Oct 5/6	VK/ZL/Oceania DX Contest (Phone)	
Oct 6	RSGB 21/28 MHz Contest (Phone)	
Oct 12/13	VK/ZL/Oceania DX Contest (CW)	
Oct 19/20	Worked All Germany Contest (Mixed)	
Oct 20	RSGB 21/28 MHz Contest (CW)	
Oct 26/27	CQ-WW DX Contest (Phone)	

Having purchased a modem and engaged an ISP (Internet Service Provider) a couple of months ago, I've had the opportunity to observe the net close hand.

One notices several parallels with amateur radio. For example, the trials and tribulations of getting the hardware and software to work properly are reminiscent of getting a new rig and antenna up and running. Another is the huge variety of sites, and the range of information available on them. With a click of the mouse, you're in Brazil, Finland, or wherever. It's all so effortless, a bit like a really good opening on 20 or 15 m.

You lose all track of time searching, reading, and downloading information. Before you know it, your daily quota is up, and "click" goes the modem as the ISP kicks you off line. This enforced "QRT" is probably just as well, otherwise you could easily be there half the day, without even realising it. Once again, a bit like ham radio!

One of the net's finest features is, of course, e-mail. This does away with all that printing of letters and envelopes, rushing to the post office in your lunch break, spending money on stamps, and worrying about mailing delays. You simply type the message, click on send, and it's on the other side of the world in a matter of minutes. It's so easy it's disgraceful!

Having used the net many times now, there is no doubt in my mind that it represents a serious, albeit manageable, threat to our hobby. The means of communication are not that dissimilar, and there is a tangible feeling of achievement as bit by bit, one establishes a reliable and efficient setup, and learns the basics of net navigation.

The areas where the two mediums differ is, unfortunately, to our detriment. To get on the net, you don't need to: pass an exam, pay licence fees, buy expensive and highly specialised equipment, worry about antenna permits, erect antennas, try not to fall off the tower, put up with atmospherics and the vagaries of propagation, deal with cranky neighbours and TVI, and have a nervous attack whenever there's a windstorm. It's easier to justify the purchase of a computer and modem to the rest of the family, especially as such items can be used by them at any time, whereas an amateur station can't. To top it off, a computer even uses less electricity (although the way computers are going, that advantage may soon evaporate)!

As amateurs, we need to think long and hard about how to keep others in the fold, and to attract outsiders who might stray our way. It's going to be an uphill battle, but I don't think lowering the standards is the way to go, as some people would have us believe. We need to let the net surfers know that there is another communications medium out there which is much more personal, more highly skilled, and far more exclusive: amateur radio.

One very good way is to advertise our presence on the net at every opportunity, and it is pleasing to note many good amateur radio sites springing up. A couple of WIA divisions already have web pages, and of course there are many overseas ones as well, including those of RSGB, ARRL, CQ, and many others. Two very popular sites (for contesting and DX) are *cq-contest-request@tgv.com,* which is an e-mail reflector, and *contesting.com* which is some sort of communal home page, which I have yet to fully figure out.

I'm sure there are many other good sites as well, and would be pleased to hear of any you have discovered, especially those where one can post contest rules and download results (and not just for US contests)! On the other hand, if you're new to the net, try sending an e-mail message to *cq-contest-request@tgv.com* containing the word *subscribe*. Then, sit back and watch all the messages pour in. It's like a big round table with several discussion threads; fascinating!

Finally, good luck in the RD Contest this month, and may your team win!

Thanks this month to VK1PJ, OE4BKU, OH6YF, and CQ. Until next month, good contesting!

73s, Peter VK3APN

Bulgarian DX CW Contest

1 September, 0000-2400z Sun

This contest runs on the first Sunday of September each year on 80-10 m, CW only. Exchange RST plus ITU zone (P2 = 51, VK4/8 = 55, VK6 = 58, VK1/2/3/5/7 = 59). Score six points for each QSO with an LZ, three points for each QSO outside your WAC continent with a non-LZ, and one point for each QSO within your WAC continent. SWLs score three points if both exchange numbers are copied, and one point if only one exchange number is copied. Multiplier equals the total ITU zones worked on each band. The final score equals the total QSO points (all bands) times the total multiplier (all bands). Send logs postmarked within 30 days (1 Oct) to: Central Radio Club, Box 830, 1000 Sofia, Bulgaria.

Panama Anniversary Contest (SSB)

1 September, 0000-2359z Sun

The Panama Radio Club invites all radio amateurs to participate in their 25th annual contest. The only category is single operator, SSB, all band 40/20/15 m. Exchange RS plus serial number. Score two points for QSOs with HP stations, and one for others. The multiplier is the total DXCC countries worked on all bands. Certificates of participation will be sent to all amateurs working 10 or more HP stations, upon receipt of three IRCs, and a plaque to the highest scoring station in each continent. Send log postmarked by 29 November to: Radio Club Panama Contest, Box 10745, Panama 4, Panama.

Scandinavian Activity Contest

21/22 September (CW), 28/29 September (Phone); 1500z Sat – 1800z Sun

The CW and phone sections of this contest run on the 3rd and 4th full weekends of September respectively, each year. The object is for amateurs worldwide to contact as many stations in

Scandinavia as possible, on 80-10 m (no WARC bands). Scandinavian prefixes are LA/LB/LG (Norway); JW; JX; OF/ OG/OH/OI (Finland); OF0/OG0/OH0 (Aaland Isl); OJ0 (Market Reef); OX; OY; OZ; SI/SJ/SK/SL/SM/7S/8S (Sweden); and TF.

Categories (all band only) are single operator; single operator QRP (max 10 W I/P); multi-operator single transmitter; and SWL. Exchange RS(T) plus serial number starting at 001. For each QSO, score one point on 20, 15 and 10 m, and three points on 40 and 80 m. The multiplier is the number of call areas (0-9), not prefixes, for each Scandinavian country worked on each band. Portable stations without a district number count as area 0, eg G3XYZ/LA counts as LA0. OH0 and OJ0 are separate call areas. The final score is total QSO points (all bands) times total multiplier (all bands).

Use standard format for logs and summary sheets. Show duplicate QSOs with 0 points. Dupe sheets are required for 200+ QSOs. Forward separate logs for CW and phone sections. Logs on DOS disk are welcome, and must be in ASCII, one QSO per row, and labelled with the call, contest name, section/s, and contest date. Include an SASE if you want your disk returned. Summary sheet must be on paper. The mailing address alternates between EDR (Denmark), SRAL (Finland), SSA (Sweden), and NRRL (Norway) in that order. For 1996, send logs postmarked by 31 Oct to: SSA HF Contest Manager, Jan-Eric Rehn SM3CER, Lisataet 18, S-863 00 Sundsbruk, Sweden. Comprehensive awards to top scoring stations.

CQ-WW RTTY DX Contest

28/29 September, 0000z Sat – 2400z Sun

In this contest, the object is to contact as many stations worldwide as possible using digital modes (Baudot, ASCII, AMTOR (FEC & ARQ), packet on 80-10 m (no unattended operation or operation through gateways or digipeaters), etc. Note new rule: all stations may now operate for the full 48 hours.

Categories are: Single operator unassisted, single and multiband; Single operator assisted, all band; Multi-operator single Tx, all band ("10 minute" rule applies to this category EXCEPT that one – and only one – other band may be used during the 10 minute period, if – and only if – the station worked is a new multiplier); Multi-operator multi Tx, all band. Single operator entrants can enter the low power section (up to 150 W) or high power (more than 150 W).

Stations may be contacted only once per band, regardless of the mode used. Send RST plus CQ zone; W/VE will send RST, state or area, and CQ zone. Count one point for each QSO with stations in your own country, two points for each QSO outside your country but inside the same WAC continent, and three points for each QSO with stations outside your continent. On each band, the multiplier equals the sum of US states (max 48) and Canadian areas (max 13) *PLUS* DXCC countries (including W and VE) *PLUS* CQ zones (max 40). Note: KL7 and KH6 are claimable as country multipliers only, not state multipliers. Canadian areas are VO1, VO2, VE1 (NB), VE1 (NS), VE1 (PEI), VE2, VE3, VE4, VE5, VE6, VE7, VE8 and VY. The final score equals total QSO points times total multiplier from all bands.

Submit a single summary sheet including scoring calculations for all bands, plus for each band a separate log, duplicate check list, and multiplier check sheet. Send logs postmarked by 1 December to: Roy Gould KT1N, CQ WW RTTY Contest Director, Box DX, Stow, MA 01775, USA (Box "DX" is not a misprint!) A comprehensive range of plaques and certificates is offered.

Results of 1994 CQ-WW Phone DX Contest

(call/band/score/QSOs/zones/countries)

High Power:					
VK5GN *	A	2,066,038	2067	110	237
VK3TZ *	A	1,133,328	1068	116	220
VK2XT	A	123,414	295	46	88
VK2ARJ*	21	248,084	792	29	80
VK5OE	14	3,268	33	17	21
VK3AKK*	7	201,977	629	32	77
Low Power:					
VK3PU *	A	305,136	531	70	138
VK3DXI	A	99,040	224	55	105
VK2SXX	A	32,490	137	39	51
VK4ICU	28	20,938	130	20	38
VK8BE	28	2,616	109	8	16
VK2AYD*	21	105,120	412	28	62
VK4OD	21	4,840	43	13	27
VK3SM	14	9,328	77	21	32
Single Op Assisted:					
VK2VM	A	23,718	127	23	44
Multi Op Single Tx:					
VK1DX	*	1,758,200	2107	100	198
VK4MZ	*	1,288,803	1310	114	239
VK4SSB		849,285	1248	84	159
P20WW	*	2,462,528	2441	107	246

Results of 1994 CQ-WW RTTY DX Contest

(section/score/QSOs/mult):

VK6HD *	SOA	288,756	426	234
VK5GN	SOA	82,062	201	141
VK3DXI	SOA	48,450	168	102
VK8BE	SO14	768	16	16
VK2BQS	SO14	702	16	18
VK6GOM *	MO	170,262	367	162

(ops VK6GOM, VK6APW and VK6ZH)

Results of 1996 John Moyle Field Day Contest

Presented by Phil Rayner, VK1PJ

I am pleased to report that the President's Trophy, awarded to the single portable operator with the highest CW score, goes to VK4EMM John Loftus, who achieved a score of 290 points in the six hour CW HF, portable section. Well done John!

I would like to thank the following home stations for taking part in the contest, which is very much appreciated by all the portable operators who put a lot of effort into their operations. Thanks to VK2RJ, VK3ALD, VK4AJH, VK4EJ, VK4EWR and VK4SL.

The results are shown in the table below. Stations with an asterisk next to their score have been awarded a certificate. It was quite difficult selecting the certificate winners, as I am not a believer in awarding certificates to everyone, and had to come up with a formula which was fair but also provided some degree of performance indication. After many trials I selected a simple approach. Considering the operating conditions and number of participants, I set a benchmark of 10 points per hour (because I operated with VK1ACA, I had first hand experience of what was reasonable). This meant that not only did stations have to achieve one of the top three positions in their section, but they also had to achieve a minimum of 60 or 240 points, in the six and 24 hour sections respectively. This meant that I was unable to award certificates for all sections. My approach was fairly liberal, however, and I would appreciate any constructive feedback from participants.

Six Hour Results:

Columns: 1. Callsign
2. Multi/Single
3. Mode (All, Phone, CW)
4. Band (All, HF, VHF)
5. Score

VK4XY	Mult	All	HF	316	*	
VK2HZ	Mult	All	HF	182	*	
VK2FRE	Mult	Phone	All	924	*	
VK4YH	Mult	Phone	All	644	*	
VK2BOR	Mult	Phone	All	20		
VK5ARC	Mult	Phone	HF	304	*	
VK3SAA	Mult	Phone	VHF	1310	*	
VK3JMD	Mult	Phone	VHF	922	*	
VK4WIZ	Mult	Phone	VHF	792	*	
VK5CC	Sngl	All	All	14		
VK2DXV	Sngl	All	VHF	36		
VK4EMM	Sngl	CW	HF	290	*	Trophy
VK4OE	Sngl	Phone	All	1070	*	
VK2BGF	Sngl	Phone	All	124	*	
VK3KTO	Sngl	Phone	VHF	466	*	
VK2ANK	Sngl	Phone	VHF	300	*	
24 Hour Results						
VK4WIS	Mult	All	All	2142	*	
VK4WIP	Mult	All	All	1832	*	
VK6ANC	Mult	All	All	1780	*	
VK1ACA	Mult	All	HF	772	*	
VK4CHB	Mult	All	HF	444	*	
VK4WIT	Mult	All	HF	150		
VK3ER	Mult	Phone	All	3480	*	
VK3APC	Mult	Phone	All	2050	*	
VK3FRC	Mult	Phone	All	564	*	
VK2FFG	Mult	Phone	All	314	*	
VK4WIE	Mult	Phone	VHF	4854	*	
VK4FW	Sngl	CW	HF	179		
VK5AFO	Sngl	Phone	All	342	*	
VK1GL	Sngl	Phone	All	340	*	
VK4EV	Sngl	Phone	HF	98		
VK5BW	Sngl	Phone	VHF	1992	*	

Thanks to those who sent their logs on floppy disk, which really made things a lot easier. Although a couple of paper logs this year were a bit untidy and spattered with coffee, overall they were a big improvement from the ones I received when I first started managing this contest.

This year I went out with the crew at VK1ACA. Saturday was miserable, with horizontal rain and very strong winds. We could do no more than sit in the cars and wait. However, we eventually had to get out and set up, amidst accusations of "whose @&*! idea was this" etc, with everyone claiming that someone else was to blame. Although we were in Canberra, even all the "hot air" there did not protect us! Luckily, from what I hear, not everyone

had it as bad. For instance, when the VK4s say it is raining, it only does so because they "need it"!

Rule Changes for Next Year

Next year (15/16 March 1997), the following changes will take effect until propagation and participation improves:

1. The 24 hour and six hour sections will be replaced by a single 12 hour section, commencing at 0900 UTC on Saturday evening, and finishing at 2100 hours UTC on Sunday morning.

2. Multi-operator stations will automatically be classed as all band, all mode. The single operator sections will remain unchanged.

1996 VK/ZL/Oceania DX Contest

This contest takes place each year on the 1st and 2nd full weekends of October (Phone and CW sections respectively). For 1996, the dates will be:

Phone: 5/6 October 1996, 1000 UTC Saturday to 1000 UTC Sunday

CW: 12/13 October 1996, 1000 UTC Saturday to 1000 UTC Sunday

Object: The object is for stations throughout the world to contact as many stations as possible in VK, ZL and Oceania (WAC boundaries apply), on 80, 40, 20, 15 and 10 m. Contacts between different countries in Oceania are permitted, but contacts within the same country are not permitted. Note that 160 m contacts are no longer valid for this contest.

Categories: Single operator all band; multi-operator all band; and SWL. Single operator stations are where one person performs all operating, logging, and spotting functions.

Exchange: RS(T) plus a three or four digit number starting at 001 and incrementing by one for each contact.

Multiplier: On each band this is the number of prefixes worked on that band. A "prefix" is the letter/numeral combination forming either the first part of the callsign, or else the normal country identifier for stations using their home callsign in another DXCC country. For example: W8, AG8, HG7, HG73 are all separate prefixes. The prefix for both N8ABC/KH9 and KH9/N8ABC is KH9. Portable designators without numbers are assumed to have zero after the letter prefix, eg N8ABC/PA becomes N8ABC/PA. Any calls without numbers are assumed to have a zero after the first two letters, eg RAEM becomes RAEM. Suffixes indicating maritime mobile, mobile, portable, alternate location, and licence class do not count as prefixes (eg /MM, /M, /P, /A, /E).

Scoring: For each contact score 10 points on 80 m; five points on 40 m; one point on 20 m; two points on 15 m; and three points on 10 m. The final score will be the total QSO points multiplied by the total number of prefixes worked. The same prefix can be claimed on different bands.

Logs: Use a separate log for each band, with times in UTC. Show new prefix multipliers the first time they are worked. Logs should be checked for duplicates, correct points, and multipliers. Logs should be accompanied by a list of prefixes worked on each band, and a summary sheet showing callsign, name, address, category, number of valid QSOs, points and multipliers on each band, claimed score, and a signed declaration that contest rules and radio regulations were observed. Logs may also be submitted on DOS disk in ASCII format, although the summary sheet must be on paper. Comments and interesting anecdotes are invited.

SWL Logs: SWL logs should show date/time, the callsign of the station heard, the callsign of the station being worked, RS(T) and serial number sent by the heard station, points claimed, and new multipliers.

Log Submission: The mailing address alternates between NZART and WIA. For 1996, send logs postmarked within six weeks (25 November) to: John Litten ZL1AAS, Onemana Post, Whangamata, New Zealand. Overseas entrants please use airmail.

Awards: Special certificates will be awarded to the top scorers in each category, in each continent, country, and VK, ZL, and JA call area. Where justified, single band awards may also be made at the discretion of the Contest Manager.

The CW entrant with the highest score will be awarded the Frank Hine VK2QL Memorial Trophy, and receive an attractive wall plaque in permanent recognition of his or her achievement.

Disqualification: Entrants may be disqualified for taking credit for excessive duplicates, unconfirmed QSOs or other scoring discrepancies, or unsporting conduct. In matters of dispute, the Contest Manager's decision will be final.

**PO Box 2175, Caulfield Junction, VIC 3175*
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REMINDER: Chinese and Russian valves are currently available and probably will continue to be, they have to be run at approximately 60-70% of the rating of USA valves.

For declining HF propagation conditions we are introducing our latest range of Log Periodic Antennas for the discerning Amateurs. We use all stainless steel hardware, 6351-T6 aluminium for booms & elements. Phillystran hangers & anti-sway braces on all models.

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5/- 4 square Vertical Beam Antennas, for 20, 40, 80 & 160 m available May 1996. 8.2 dBd gain F/B ration > 25 db switchable in 4 directions. 20 m 4 x 13 ft verticals on a 15 ft square. A fraction of the price of a rotary beam, tower, etc. for the same gain. It is also neigbour friendly.

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Divisional Notes

Forward Bias – VK1 Notes

Peter Parker VK1PK

Remembrance Day Contest

VK1 showed its strength last year when we claimed the RD Contest trophy from the Victorians. This year's challenge is to keep the trophy in Canberra, a task not made any easier by the new rules. The contest, which contains sections for both HF and VHF/UHF operating, takes place on the weekend of 17 and 18 August. The rules were published on page 33 of last month's *Amateur Radio*.

1996 Technical Symposium

Mike VK1KCK, the organiser of this year's Canberra Amateur Packet Radio Group Technical Symposium, reports that the event will most likely occur on either 23 or 30 November. Mike invites those who wish to speak or present a paper to get in touch with him. You can phone Mike on 292 0053, or send a packet message to VK1KCK @ VK1KCM.

VK1 Award for SWLs

Did you know that the VK1 Award also has a receiving section? The requirements are similar to the transmitting section, in that you must log at least 20 different VK1 stations. However, when filling in your logbook, please make sure that you also log the station with whom the VK1 station was in contact.

The VK1 Award net can be heard on 3.570 MHz after the end of the 8 pm Sunday broadcast relay and call-backs.

Asset Register Update

The VK1 Committee is currently updating the Divisional asset register. The serial and model numbers of equipment owned by the Division is required. If you have a piece of equipment belonging to the VK1 Division, please get in touch with our president Phil VK1PJ. Phil can be reached on 292 3260.

Membership Secretary Appointed

At Monday's Divisional committee meeting, Hugh Blemings VK1YYZ volunteered as Membership Secretary. If you want more information about the advantages of Divisional membership, or would like to join the Division, please contact Hugh. His phone number is 254 7855.

VK1AJM Wins SWR Bridge

To promote greater attendances at Divisional meetings, the VK1 committee has decided to run raffles for those attending. The first such raffle occurred at the June meeting. At 50 cents per ticket (5 for $2), tickets sold quickly. The prize was a Midland SWR/power meter. Though initially won by Chris VK1DO, he generously donated the prize back to the Division, and a second draw was held. Congratulations to John VK1AJM, who had the lucky ticket, and won the meter. More raffles, some with larger prizes, will be held at future meetings.

Those at June's meeting also heard a presentation by Chris VK1DO on the Division's efforts during the John Moyle Field Day held back in March. Apart from the slide show, the audience also went home with some thoughts on operating fresh in their minds.

Again the Division made available a set of large spools for storing portable antennas. These proved very popular.

VK180 Receiver Project

All fifteen receiver kits produced have now been sold, with interest being expressed from as far away as New Zealand. The Division has decided to go ahead with the production of a second batch of short-form kits. Subject to component availability, kits may be available by the time you read this. Keep listening to the VK1WI bulletin for the latest on this project.

Sly Fox Keeps Hunters at Bay

The first foxhunt in VK1 for some time was held over the Queen's Birthday long weekend in June. Organised by Bernie VK1KIP, it is hoped that the event will lead to a revival of interest in foxhunting amongst Canberra amateurs. Hunters set off from the Griffin Centre at 11 am. Despite the favourable weather, it took the first team about two hours to find the fox, which was located on Davidson Trig Point, some 7 km south of the starting venue. However, to prevent the hunt extending into its third hour, the fox graciously gave some (truthful) clues to the hounds.

Those participating learnt the following: reflections from buildings and hills can foil the hounds; the fox's transmitting power was not necessarily constant; foxes may lie; the polarisation of the fox's antenna may not be constant; the fox may wiggle the transmit antenna to produce flutter; there may be more than one fox transmitter; the fox may operate SSB and Morse in addition to FM; hiding amongst rocks distorts the fox's antenna's radiation pattern; the fox may only be accessible on foot; and signals at the bases of hills (even when quite close to the fox) can be very weak, especially where the hillside blocks the direct path between transmitter and receiver.

The hunt was eventually won by the VK1KNP team. The Division is planning future fox hunts. While rumour has it that they will be somewhat easier than June's event, readers should appreciate that nothing can be ruled out at this stage.

VK2 Notes

Richard Murnane VK2SKY

Dural Update

The Dural station committee met recently to discuss plans to upgrade the Divisional broadcast facilities. The new committee comprises John Hams VK2JH, Committee Chairman; Dave Horsfall VK2KFU, Station Engineer; and Tim Mills VK2ZTM, Committee Secretary.

The Divisional two metre repeater experienced rather severe interference recently; this was reportedly caused by intermodulation from a new service that had just been installed on the big tower. By the time you read this, the problem will have been resolved.

News Submissions

As I mentioned in an earlier VK2 Notes column, I am taking over the position of Broadcast Officer from Michael Corbin VK2YC. The practical upshot of this is that you should no longer direct facsimile news items to Mike's personal fax, but rather to the Divisional Office on (02) 633 1525.

In addition, the address for submitting news items via packet has changed. It is now *BCAST@VK2WI.NSW.AUS.OC*, as it was getting impractical to filter out all the bulletins addressed to NEWS that were not related to the VK2WI broadcast.

News items, of course, may still be submitted via electronic mail to *wiansw@sydney.dialix.oz.au*, and by means of Australia Post. The Friday deadline still applies, so please make sure you get your news items in on time to avoid disappointment.

Affiliated Clubs Net

A net for clubs affiliated to the Division has been established; it takes place each week after the Sunday evening broadcast on the VK2WI 80 m broadcast frequency of 3.595 MHz LSB. Club representatives are encouraged to join the net to discuss issues of interest. See you there!

Thought for the Month

The secret of being a bore is to tell everything – *Voltaire, Sept Discours, 1738.*

VK3 Notes

Don Jackson VK3DBB

With all the hustle and bustle of the WIA Victoria Council elections now over, the Council has settled down to work with attention being given to matters raised at the Annual General Meeting, and getting on with a multitude of routine issues.

Steve VK3HK is working towards revitalising our broadcasts, with the aim of going to air twice a month and, hopefully, weekly. But he will need lots of assistance from our clubs and members with news to put to air. Give him the support to provide the service wanted by so many of our members. To aid dissemination of news and information, our packet news under the callsign of VK3WI will be regularly updated.

In response to a motion passed at the AGM, Jerry VK3MQ is gathering facts on a possible relocation of the WIA Victoria Office, to determine if there is a location that is more central to the bulk of the Division's members. Information is being sought from many areas, and his report will have regard also to the economic viability of an office relocation.

On the WIA Federal front, your Division, with several others, expressed deep concern at the Federal body's budget which, following a loss of $18,000 last year, forecasts a further loss of $18,000 this year. Whilst reserves are enough to cover this loss, we feel that to continue on a loss basis will spell disaster for the organisation very shortly. We have not yet received any written response to our objections to the budget, and the situation is exacerbated by the fact that, at the time of writing, the VK4 Division has refused to pay its agreed amount of annual subscription. We will keep you informed of what transpires.

On the technical side, WIA Victoria is negotiating with various clubs, relevant authorities and other bodies towards improvement of repeater facilities at three sites. These are in the Horsham, and South and West Gippsland areas and, if as successful as anticipated at this stage, two metre users in these parts of the state will be afforded much superior coverage than ever before. Negotiations are well advanced, and full details will be made available as soon as possible. The Mount Macedon two metre repeater VK3RMM is suffering from a sticking relay problem which will be attended to as soon as weather permits.

Congratulations are due to Rob VK3NC, the Divisional Treasurer, and his wife Julie on the birth of their first child, Nicola. Well done! Under Rob's sound guidance, the Division's financial situation has continued to improve, and we know his enthusiasm augurs well for the future of his family.

On a less happy note, the Council is extremely disappointed at the continuing level of deliberate and divisive mis-information being disseminated on air each Sunday. Most of the statements and allegations being made have no basis in truth and are seen to be a deliberate and determined effort to disrupt the Division. The Councillors will not become publicly involved in defending these vindictively malicious attacks on their personal integrity as it only denigrates the hobby. Members are free to personally contact the Secretary, Barry VK3XV, to discuss these, or any other matters, as they so desire – that's what the Secretary is for!

VK6 Notes

John R Morgan VK6NT

Divisional GM

Due to bad weather, only 18 members attended for the June AGM which, due to the lack of a quorum, became an informal get-together.

General Meetings are held on the third Tuesday of each month in the Board Room, 3rd Floor, CWA House, 1174 Hay Street, West Perth, commencing at 8 pm. There is no meeting in December. All interested persons (members and non-members, licensed or listener) will be made welcome. Free coffee and biscuits are available.

NAOCP Morse Class

After only 14 study sessions, the seven participants in the Morse section of the Division's current NAOCP course finally went "on air" for the first time on Wednesday, 3 July 1996. There were some antenna problems at the VK6GGA station where the classes are held, but a long 80 m QSO was managed with Eric VK6BJW in Kenwick.

For the next few months members are asked to listen for, and work, VK6GGA on Wednesday evenings, between 1800 and 1930 hrs local time, near 3.527 MHz, using between three and five words per minute.

WA Repeater Group

On Saturday, 29 June 1996, in wet and windy weather, a working-party visited the Tic Hill site (VK6RTH, 146.800 MHz and 438.225 MHz). The primary purpose of the visit was to install two new 70 W solar panels, following last year's vandalism, in order to enable all the site's transmitters to operate at

WIA FEDERAL OFFICE MANAGER

Expressions of Interest are invited for the position of Office Manager in the WIA Federal Secretariat in Melbourne.

This is a unique opportunity for a suitably qualified person to become part of the team which provides national support to the seven WIA Divisions. The job entails responsibility for the efficient operation of the office and includes management of the employed staff.

The Federal Secretariat also has responsibilities for membership subscriptions and records, the examinations service, "Amateur Radio" magazine, and general assistance to the Federal Council and Executive.

The position involves some secretarial duties and the ability to use a Personal Computor with word-processing facilities is essential. PC File Database experience will be favourably considered.

Written submissions of interest containing details of personal qualifications should be addressed to:

The Federal Secretary
WIA Federal
PO Box 2175
Caulfield Junction
Victoria 3161.

Applications close 30th September.

full power. The secondary purpose was to replace the 70 cm repeater equipment. Both tasks were successful. The participants were Dennis VK6LD, Cliff VK6LZ, Chris VK6KCH, Ralph VK6KRB, Will VK6UU and John VK6NT. Special thanks go to Mac VK6MM for donating the panels.

WARG invites you to take part in its informative and entertaining VHF net, held every Sunday morning, commencing at 10.30 am. Listen for VK6RRG on the Lesmurdie repeater (VK6RLM, 146.750 MHz). Meetings are held at the Scout Hall on the corner of Gibbs Street and Welshpool Road, East Cannington, on the first Monday of every month, starting at about 7.30 pm. The odd-numbered months are General Meetings, and the even-numbered months are Technical Meetings.

If You Have Material ...

Material for inclusion in this column may be sent to VK6NT @ VK6ZSE.#PER.#WA.AUS.OC, or to PO Box 169, Kalamunda WA 6076, or via telephone on (09) 291-8275.

"QRM" News from the Tasmanian Division

Robin L Harwood VK7RH

August is Remembrance Day Contest month and your Division is hoping that there will be a good turnout of VK7s participating this year. It is now 51 years since World War II concluded, yet the memories from it are still quite strong. Please make the attempt, turn on your rigs and give out some numbers on 17-18 August. Details are on page 33 of the July issue of this magazine.

Don't forget that VK7WI will not be heard on 18 August at its usual time, but will be broadcast at 1715 EAST on Saturday, 17 August. This broadcast will include the Remembrance Day opening address and will also allow a 15 minute silence period as a mark of respect to those amateurs who made the Supreme Sacrifice.

The Southern Branch has been busily planning foxhunts around the Domain, including one on 80 metres. I believe that Richard VK7RO has been constructing the fox. Also, I believe that several excursions are being planned by the Southern Branch secretary, John VK7RT. Further details at Branch meetings and on VK7WI.

The Northern Branch are also planning an Activity Day at Scout Island on Sunday, 11 August 10 am. It will be a practical demonstration on the erection of portable antennas. Again, details will be on VK7WI.

The planned Divisional Council Meeting, originally scheduled for June, had to be postponed due to unforeseen circumstances. Details of the 13 July meeting in Launceston will appear in the September issue of *Amateur Radio.*

Monthly meetings for the month of August will be: Southern Branch on Wednesday, 7 August at 2000 hours at the Domain Activity Centre; Northwestern Branch, at Penguin High School on Tuesday, 13 August at 1945 hours; and Northern Branch on Wednesday, 14 August at St Patrick's College, Prospect at 1930 hours.

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WIA News

No Immediate Threat to Bands from US Satellite Users' Proposal

A proposal in May from the Mobile Satellite Service users to a Federal Communications Commission committee preparing draft US proposals for the 1997 World Radio Conference (WRC-97) that sought a "shopping list" of frequency bands, including the two metre and 70 centimetre amateur bands, drew fire from the American Radio Relay League (ARRL) who orchestrated a barrage of protest letters to the committee (see *WIA News*, July *Amateur Radio* magazine).

This issue has given rise to the apparent belief being circulated among Australian amateurs that our 2 m and 70 cm bands are under immediate threat. According to the WIA's representative on the Spectrum Management Agency's International Radiocommunications Advisory Council (IRAC), Dr David Wardlaw VK3ADW, the proposal is a US domestic issue and offers no immediate threat to Australian amateur allocations.

The WIA has been aware of the proposal, and the ARRL's actions, since it arose some months ago. David Wardlaw contacted the general manager of the ARRL, David Sumner K1ZZ, and received information from him. Subsequently, David Wardlaw raised the Australian amateur radio community's concern at an IRAC meeting.

US embassies around the world wrote to each country's regulatory authorities, canvassing replies on usage of the bands included in the mobile satellite service proposals. The 70 cm amateur band was then no longer on the list. In Australia, the matter was dealt with by the SMA in consultation with the IRAC. For inclusion in the SMA's reply to the US embassy, the WIA pointed out to the IRAC that, in Australia, 144-148 MHz is a primary allocation to the Amateur Service in the Australian Radiofrequency Spectrum Plan (the "law" on spectrum allocation in Australia) and widely used, many operators worked with weak signals down to the noise floor, and there were well-established repeater and beacon networks throughout the country.

David Wardlaw told *WIA News* that currently no satellite users in Australia had foreshadowed any proposals for frequency bands below 1 GHz. The proposed frequency bands in the American submission are purely a US domestic shopping list, he said. American literature on LEO mobile satellites circulating in Australia includes such proposed frequency bands, which may be misunderstood to be actual allocations.

Present mobile satellite band allocations below 1 GHz are 137-138 MHz, 148-150.5 MHz, and 400.15-401 MHz. Mobile satellite users were not satisfied with the allocations they gained at WARC-92, some of which are shared with land-based services, and having been unsuccessful in getting further bands at WRC-95, are looking for more allocations below 1 GHz from the WRC-97 conference.

Mobile satellite users first have to get their proposals through the US Informal Working Group (IWG-2A) which is considering US proposals concerning mobile satellite service allocations below 1 GHz in the lead up to WRC-97. The ARRL is represented on IWG-2A. After any proposal leaves IWG-2A, it has to pass through several other committees before getting to WRC-97 as a US proposal. If successful, any proposal then has to pass through the committee and plenary session processes at WRC-97. Even if successful there, there is then an essential notification and coordination procedure with the ITU. Administrations in each of the 160 ITU member countries then have four months to determine if other services in their country are affected and if frequency coordination is required.

In preparation for WRC-97, sharing studies covering proposed bands are to be done by ITU study groups to determine where and how possible new allocations may affect existing bands and services using them. David Wardlaw said there is a long way between a proposal raised in the US, with a shopping list of frequency bands, and any possible new allocation which may affect amateur bands in Australia.

Education Notes

Brenda M Edmonds VK3KT Federal Education Coordinator*

Some months ago I wrote about the International Council for Amateur Radio in Education (ICARE) which was formed in Europe last year. This group aims to interest schools and students in amateur radio, and to share ideas between amateurs using radio in schools. Their second conference has just been held in Germany, and I am looking forward to receiving a copy of the Proceedings.

I would like to be able to contribute ideas from Australia, but have very little information to pass on apart from the few well-known examples. From the work overseas, amateur radio is being used in conjunction with language, geography and mathematics classes as well as science and as a recreational activity. As far as I know, the recreational interest has been the main thrust in Australian schools with amateur radio clubs. The main problems, of course, are the need for a licensed operator to run the station and the difficulty of arranging a regular time-slot.

The average age of entry into amateur radio in Australia is about 40 years. Despite the growing student interest in the Internet, many of us feel that there is still a role for amateur radio in the schools. It may be more productive to move into the primary school level rather than the traditional secondary level approach.

I would be interested to hear from readers with ideas on possible ways to interest the schools or the students. I would also like to hear from amateurs who have the time or resources to assist a school with setting up and operating. I have access through ICARE to material on establishing SSTV in schools and using it for student contact for anyone who can use it.

Although I still have some contacts with science and the Victorian Science Teachers Association, I have no channel to any other subject societies. Are there any amateurs teaching in other disciplines who can introduce me to these societies or arrange for some publicity material to reach the society magazines?

Another possibility which has been suggested is that we try to introduce Amateur Radio Direction Finding (ARDF) into the schools as a sport. Many schools already have orienteering as part of Outdoor Activities or Physical Education. ARDF would be a logical next step. How do we go about publicising it?

Over the next few months I intend to make a concerted effort to find which licensed schools are active and the uses to which radio is being put. I would be very pleased to hear from anyone who is actively involved with a school club, or who is prepared to become involved. All information is welcome. As you know, I believe in saving effort by sharing ideas.

**PO Box 445, Blackburn VIC 3130*

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Club Corner

Wagga Amateur Radio Club Inc

The Wagga Amateur Radio Club held its AGM on 28 June and the following positions were filled: President, John Eyles VK2YW; Vice President, John Roy VK2HJR; Secretary/Treasurer, Don Butler VK2MDB; and Publicity Officer, Paul Maloney VK2KVY. The committee now consists of Mike McDonnel VK2DAI, Bob Law VK2MRL, Alan Wheaten VK2KAW, and Lee Rainbird VK2LRR.

The repeater committee is made up of Mike VK2DAI, Bob VK2MRL, Sid VK2SW, Doug VK2ZMP and Doug Gilson. The packet BBS is operated and maintained by Alan VK2KAW. VK2CSU is maintained by John VK2YW.

Other office-bearers include the Awards Manager, James Jessiman VK2MLV at PO Box 294, Wagga NSW 2650; Education Officer, Dave Ashley VK2NK with the help of John VK2YW; and the QRM Editorial team of Paul VK2KVY, Greg VK2KGO, and John VK2HJR.

Club meetings are held on the last Friday of the month at the SES building in Fernleigh Rd at 1945hrs. All are welcome.

Travellers passing through our area can contact members via the club repeater on channel 6750. We anticipate that our 70 cm repeater will be up and running in the very near future on 438.675 MHz. Also, the Club conducts a Wagga Awards Net on Tuesday evenings at 8 pm on 3605 kHz. Again, all are welcome, as they are at the Wagga Net which runs on 7165 kHz on Sundays at 12 noon.

Paul VK2KVY
Publicity Officer.

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How's DX

*Stephen Pall VK2PS**

We often hear comments that QSL Managers are either slow in replying or do not reply at all, especially from those countries where the mail system is not secure.

There is also quite a lot of loose talk that QSL Managers are money-hungry and, heaven forbid, even make money out of QSLing. One has to consider the realities of modern life. Some politician said some time ago that "there is no such thing as a free lunch". If one wants a special, reasonably quick delivery service compared to the QSL bureau system which takes on average one to two years, one has to pay for it. I do not think that we amateurs mind this as long as the service operates satisfactorily.

It is therefore refreshing to read a press release issued by the well-known German QSL manager Rolf DL6ZFG on this subject. Rolf said:

a. He is quitting as QSL manager as from 1 January 1997.

b. Until that date he will reply to all the QSL requests which he receives.

c. He is unable to reply to QSL cards sent via the bureau system because DARC, the German amateur organisation which runs the QSL Bureau, will not deliver non-member cards. Whilst Rolf is a member of the DARC, all his "clients", mostly from the former Soviet countries (now CIS), are not.

d. Financially it is not possible for him to pay for the printing of QSL cards and to pay also the individual membership fees to DARC for his clients.

e. After January 1997 he cannot continue even with direct QSLing because, due to the high postal charges in Germany, direct QSLing amateurs, who must include return postage with their requests, might think that he is performing the service for money.

Rolf's situation is understandable. To post an overseas airmail letter from Germany now costs DM3.00, just slightly over two "green stamps". The German post office gives only DM2.00 for one IRC, therefore it is necessary to send two IRCs as return postage from Germany. In addition, the German postal rates are scheduled for a further rise from 1 September.

In contrast to Rolf, I had an "interesting" experience the other day. One American amateur from Albuquerque, New Mexico, sent me a "not-requested" card for a QSO. He enclosed a reply envelope with a 32 cent USA stamp on it, which is the internal postage rate in the USA. Not wanting to be rude, I replied by air-mail, sending him back the reply envelope and explaining to him that we are an independent country.

CONGO – TN7OT

During 1995 the DX bands were buzzing. Congo TN7 was on the air with a lady operator named Hazel. Not much was known of her, except that she caused a huge pile-up every time she appeared on the bands. After five months of activity, her radio broke down and could not be fixed locally. She returned to her home in Alaska in March this year, and she started QSLing. She sent me her card, some photos and an interesting letter about her activity in the middle of Africa near the Equator on the Zaire border.

Here is the letter, not from a sophisticated well equipped and experienced DXpeditioner, but from a lady radio amateur of mature age who gave many amateurs around the world the opportunity to work a rare DX country. Her equipment? A tiny 100 W transmitter and the proverbial "piece of string", a wire antenna.

But let's read Hazel's story: *"My husband and I are retired and went to the Republic of Congo for the year of 1995 to assist some missionary friends there. We were in the jungle at Impfondo. Since there was no communication I took my radio to be able to contact family and friends at home in Alaska My radio was new and I had never made a DX contact, but as soon as I tried to call CQ Alaska, the airwaves were completely jammed. I didn't know what to do. I kept trying to get Alaska, and talking to hundreds of people, but no one could help me to get Alaska. Finally, in August, five months later, I contacted WL7MA. My radio is a Kenwood TS-50S. Easy to carry in a camera case along with an MFJ Versa II tuner. I used two six volt batteries for a power supply. They were charged by a solar panel. I had a wire between a coconut palm tree and a mango tree, with TV twinlead tuned to 20 m. I had a keyer to tune up. I made 918 QSOs from 6 March to 9 September. My radio quit working in October. I couldn't get it fixed there. I think that being close to the Equator gave me good propagation. I had QSOs with 47 states in America, most of Canada, Central and South America, Europe, Asia, Japan and the Pacific islands.*

I have 18 QSL cards from Australia and two from New Zealand. It was hard work; and only one contact with Alaska. It is very difficult to get a licence in the Republic of Congo. It takes a long time and a lot of money. The country does not really encourage or welcome amateurs. It doesn't even understand what amateur radio is. I was not issued a callsign. I was told to use whatever call I wanted to. I was also told that there were two other amateur radio people in Congo, but I never did locate them.

The jungle where we lived was beautiful and the people were very friendly although poor and mostly uneducated. Many young men wanted to learn English and would come for tutoring. During the period of influence of the former Soviet Union, English was forbidden and Russian was taught.

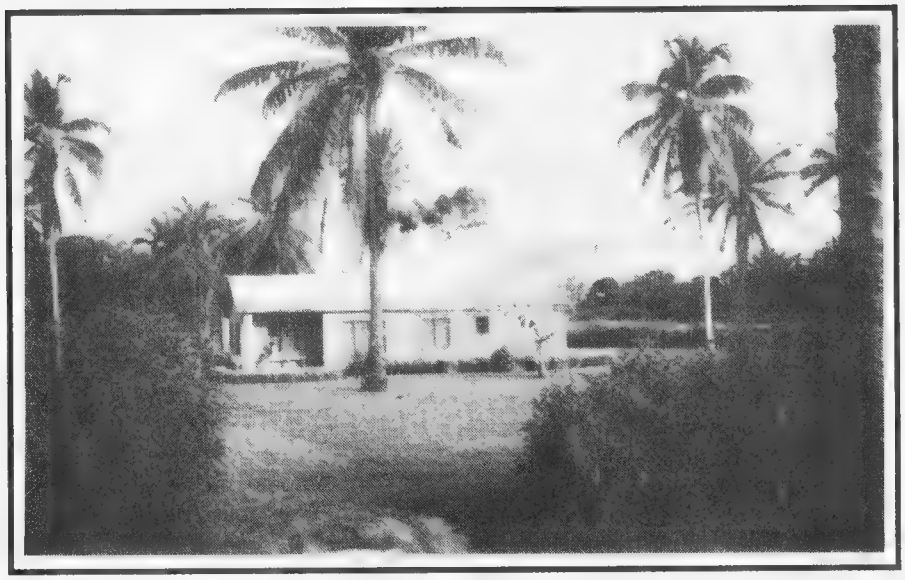
It was a pleasure to reach VK-land and ZL as well. I am now home and will try to get on the air again soon."

Hazel TN7OT operating from Impfondo, Republic of Congo.

Incidentally, Hazel's card depicts a local "Loch Ness" type legendary semi-aquatic reptile said to be living in local rivers and swamps. It is a QSL card worth having.

Clipperton Islands – FO0X?

It has been many years since there was activity from this French territory in the Pacific Ocean, southwest of Mexico (10° 17′ North, 109° 13′ West). Jay WA2FIJ is planning a DXpedition for February and March 1997. He is looking for a boat (or two) whose owner(s) would like to go to Clipperton, or who may be passing the island and would be willing to stop for seven to 10 days, and then drop the team off in Mexico (or Costa Rica). He plans to have the first YL operator on the island and the first use of a quad/tower combination on the island (if the boat can handle the tower). Jay is confident



Hazel TN7OT's house at Impfondo. Note the wire antenna between the trees, which has been highlighted in the photograph.

he can obtain the necessary paperwork but he needs a guaranteed commitment from the boat(s) so he can start the "ball rolling".

There are three levels of documentation necessary: permission for the specific named boat to be in French waters; permission to be on the land; and the actual amateur licence to operate. Are there any takers, or do you know somebody who might be able to help?

Tunisia – 3V8BB

The only licensed Tunisian station, 3V8BB, is on the air from time to time, depending on the local and foreign visiting operators. Amateur radio activity has been sporadic since Tunisia gained independence from France in 1956. Up to 1963 the French military controlled amateur radio activities. Until about 1985 only two stations were active and accepted for DXCC, 3V8AA and 3V8PS.

On 6 September 1994 the Ministry of Communications authorised the establishment of a club station in the Institut Superior de la Jeunesse in Bir-El-Bey, a Higher Business School for Youth and Culture. Bir-El-Bey is a locality on the Tunisian coast, 30 km south of Tunis, the capital city. The first activity from the club was on 19 November 1994 by JH2CFD and a group of Japanese amateurs who established the station and started operating under the callsign 3V8BB. Osamu JI1HUC, a great supporter of the Club and a frequent operator, had been in residence in Tunis for three years as a member of a Japanese overseas volunteer program. His term of duty expired in March this year.

Because there were many overseas visiting amateurs, with their own individual QSL routes, there is some confusion as to who operated when, and where should the QSL go? Here is a schedule which might help you: 14-29 Jan 1995 via JF2EZA; 29 Apr – 5 May 1995 via YT1AD; 24 – 29 July 1995 via YT1AD; 10 – 18 Aug 1995 via YT1AD; 14 – 31 Oct 1995 via G0UCT; 25 – 26 Nov 1995 via DL2OBF; 13 – 21 Jan 1996 via F2KN; 1 – 10 Mar 1996 via DL8HYK; 23 – 24 Mar 1996 via DF2UU; 28 Mar – 2 Apr 1996 via YT1AD; 3 – 12 Apr 1996 via OKDXF; and 14 – 24 Apr 1996 via AA6BB.

3V8BB is authorised to operate on the 160, 80, 40, 20, 15, 10, and 2 m bands and the 70 cm band in all modes with a maximum power of 100 watts.

Sable Island – CY0AA

This activity started on 18 June and Mike VE9AA was the first arrival on the island. The second group of operators, WA8JOC and W9OEH, arrived on 24 June. The three stations were operating until the morning of 3 July local time. The group did not run lists or take part in nets, preference was for individual contacts. The station was heard in Australia and there were a few SSB and CW contacts with them on 20 and 40 metres.

Direct QSLing is preferred as bureau cards will have a lower priority. Donations are still welcomed as the expenses have exceeded original estimates. Any funds will be graciously accepted by either VE9AA or WA8JOC. QSLs for the HF contacts go to WD8SDL Roger H Mayer, 5639 Monica Ct, Cincinnati, OH-45238, USA.

Scholl Island – VK6ISL – OC-140

Mal VK6LC and Terry VK6VS were active from Scholl Island from 23 June to 6 July 1996. Scholl Island is near Montebello Islands in the Indian Ocean, north west of Western Australia, located at 115° 52′ and 20° 56′. The island is one of the eight Passage islands which are in the area.

The two operators were supported from the mainland with transport, equipment and other facilities by Dave VK6DLB, Michael VK6BHY and Steve VK6PA.

After a slow beginning the arrival of the phased vertical array for 20 metres speeded up the QSO rate considerably.

I had a short contact with Mal before they left the island. According to Mal, the biggest problems which they faced on the island were the weather and propagation. Out of the two weeks spent on the island, their productive operational time was approximately only five days. The rest of the time was spent in tents, or looking after the tents, on rain and windstorm days, or fishing when there was no propagation at all.

Openings on the bands were unpredictable. Propagation on 15 metres was very poor, with no openings to Europe and only a few contacts with Canada. 20 metres was open for short periods, 40 to 70 minutes on long path to Europe, but then there was one night when the short path was open to Europe for 2 1/2 hours. 40 metres had good openings to Africa, America and Europe but, on one occasion, 15 and 20 metres closed completely for three days during which time only a few contacts were made.

During the daytime horizontal polarisation was the favourite, but in the evenings and nights vertical polarisation had an advantage. The new phased vertical arrays on 40 and 20 metres proved beyond doubt that these are the antennas for future DXpeditions where space allows setting them up.

Here are a few approximate statistics. The total number of QSOs was around 2500, out of which 1500 were made on 20 metres and the rest on 40 metres. They worked 35 zones and 122 countries, including Macquarie Island. QSL direct only via I1HYW Gianni Varetto, PO Box 1, 10060 Pancalieri, Torino, Italy.

Future DX Activity

* Sam FT5WE on Crozet Island has a new vertical antenna and amplifier, and a dipole on 75 metres SSB. Sam generally prefers CW operation up five kHz from the edge of the band. He was heard in VK on 3505 kHz round 1400 UTC. On 40 metres he is usually found on 7045. QSL via F5GTW.

* A number of international operators plan to activate Midway Island KH4 in the first part of August.

* Peter ON6TT has been worked with his Ugandan callsign 5X1T. QSL via ON5NT.

* 5X4C Father Sabastiano's mission has

Broughton Island OC-212 with Atsu VK2BEX operating.

been attacked and the equipment damaged. He is now off the air.

* Dave KC0IM, the well known DXer, arrived in Guinea-Bissau J52 in July for a two year tour of duty. He will be active on 40 – 10 metres on SSB and CW, and hopes to receive the callsign of J52IM. QSLs go to KB9XN.

* JG8NQJ will return to Minami Torishima for a three months stay. He will use the /JD1 suffix after his call. QSL via JA8CJY.

* There are unconfirmed rumours, originating from Hawaii, that a number of operators are planning to be active from Palmyra/Jarvis Islands and Kingman Reef. There is also news that the new owners of Palmyra Atoll, KVR Inc of New York, want to create a nuclear waste storage facility there.

*Keep a look-out for Mario, who is active from Sri Lanka as 4S7BRG on 15, 20, 40 and 80 metres. QSL via home call HB9BRM.

* Hans KN6DI should be active from Zambia using the call 9J2DI. QSL via AA6BB.

* 5X1D is active from Uganda. QSL via SM0BFJ.

* 9Q2L Alex is now active from Zaire and he is staying for one year. QSL via PA3DMH.

* There is a rumour that Steve AA6LF will attempt to be active from Ashmore Reef, one of the most outlying islets of the Northern Territory, not far from Timor.

* Don N5OLS will be active from American Samoa for the next three years as KH8/N5OLS in all modes and on all bands. QSL via AA5BL.

* The special event call GB800SA will celebrate the establishment of the market place by Richard the Lionheart in 1196 at Stratford-on-Avon. QSL via the RSGB bureau.

* Rolf XV7SW who is working for the Swedish Embassy in Hanoi, Vietnam advised me that he is now using one kW power on the fixed frequencies of 1827, 3506, 7007, 14016, 14021, 21016, 21019, 28016 and 28019 kHz. He was a good copy on 40 metres the other week. QSL direct to Rolf T Salme, Embassy of Sweden, Box 9, Hanoi, Vietnam.

Interesting QSOs and QSL Information

* FT5XL – John – 14164 – SSB – 0534 – June (E). QSL via F5NZO Didier Bruriaud, Le Bourg, Vitry sur Loire, F-71140 Bourbon Lancy, France.

* JW5NM – Mat – 14195 – SSB – 1340 – June (E). QSL via LA5NM Mathias Bjerring, Box 498, N-9170, Longyear City, Norway.

* BY5QE – Doreen – 14200 – SSB – 1145 – June (E). QSL via PO Box 219, Fuzhou, 350002, Peoples Republic of China.

* 5N0MVE – Mark – 3799 – SSB – 2119, June (E). QSL via ON7LX C Ramon, Bruggesteenweg 77, B-8755, Riselede, Belgium.

* T20AA – Ian – 14164 – SSB – 0529 – June (E). QSL via KD4XN Wayne S Smith, 4649 Poseidon Place, Lake Worth, FL-33463, USA.

* 9M8HIM – Jonny – 14226 – SSB – 0558 – June (E). QSL via HIM, Holiday Inn, Box 2295, Miri 98008, Sarawak, East Malaysia.

* KA3HMS/KH3 – Bill – 14237 – SSB – 0623 – June (E). QSL via KA3HMS William J Maurits III, 12 Vermont Place, Belair, MD 21014, USA.

* 5V7ML – Lars – 7005 – CW – 0611 – June (E). QSL via DL7ALM Lars Mahling, Rapstedter Weg 34, D-12305, Berlin, Germany.

* 5V7MD – Dave – 14305 – SSB – 0618 – June (E). QSL via AB7BB Charles Degard Jr, 919 W Vaughn St, Tempe, AZ-85283, USA.

* 5R8EN – Gerard – 14164 – SSB – 0545 – June (E). QSL via F6AJA Jean-Michel Duthilleul, 515 Rue de Petit Hem, Bouvignies, F-59870, Marchiennes, France.

* RU1POL/0 – Alex – 14009 – CW – 1300 – June (E). QSL via UA0KCL Yuri Lobachev, Box 44, Pevek, 686610, Russia.

* CM8DC – David – 7190 – SSB – 0614 – June (E). QSL via IK0ZKK Paolo Papio Orillac, Via Flaminia Vecchia 7-01, Roma, 00191, Italy.

VK2BRT Providence Beach on Broughton Island.

From Here and There and Everywhere

* The former well-known French DXer, Jacky F2CW, has settled in New Zealand and is now active on 40 m CW as ZL3CW.

* Father Cav V63JC has retired from his mission work in the Pacific. He is now living in New York in retirement.

* Graham VK0GC has returned from Davis base in Antarctica.

* Brian VK4LV reported working FR5DT/E on 40 m at 0555 UTC with 5/6 signal reports. The operator was Thierry and QSL goes to PO Box 386, St Pierre, Reunion, 97448, France.

* The Brazilian DX-Net is now operating on 14222 kHz on Saturdays and Sundays at 1900 – 2100 UTC.

* Canadian amateurs were using special prefixes from 8 June to 8 August to mark the 100th anniversary of the Yukon gold discovery. The following prefixes were allocated: VD2, VD3, VC1, VC2, VC3, VC4, VC5, VC6, VC7, VC8, VC9, CZ5, CZ4, CK3 and CK4.

* It was reported that non-residents (visitors) of the Cyprus British Sovereign Base Area will not be permitted to operate amateur radio.

* The station with the VF6RFR callsign was heard operating from the Rotary International Convention in Calgary, Canada between 23 to 26 of June.

* 3Z0WAW is a special event station celebrating the 400th anniversary of the transfer of the Polish capital from Cracow to Warsaw. QSL to SP5PBE.

* If you hoped for early activity from North Korea P5, please be more than patient. Sanyi HA7VK, who has visited North Korea, reported that at present there is absolutely no chance of getting an amateur radio licence in North Korea.

* YM21HCS and YM22HCS were special event stations during the International Habitat Conference in Istanbul, Turkey. QSL via TA2BK.

* TM1V and TM8OV celebrated the 80th anniversary of the WW 1 Battle of Verdun. QSL via F5NPS and F5REQ respectively.

* Geraldo IK8JAF – was in Yemen 7O on business for one month and was able to activate Yemen, mostly on Thursdays and Fridays on 20 m, from 1600 UTC using the call 7O1JAF. He was also heard on 40 m. There is hope that he will return to Yemen in October. QSL via home call.

* The Norwegian QSL Bureau will not accept QSL cards for the following stations: JW0A, JW0B, JW0C, JW0D, JW0E, JW0F, JW0G, JW0H and JW0I. All these stations should be sent cards direct via the QSL manager mentioned in the QSO.

* K7U special event station celebrates the Centennial of the State of Utah. QSL via K7UOT.

* Terry Robinson G3WUX is doing it the hard way. He is a member of the Trans-Greenland Expedition. He will be on 14002 kHz and 14200 kHz running 5 watts QRP into a Windom antenna. QSL via the home call.

* EA6BH's trip to Equatorial Guinea 3C has been cancelled.

* Australian special event stations sometimes have very nicely presented QSL cards. The card from Deal Island VK7DI is one of those worth having.

* Last month I indicated that the QSL address of V33BB is Box 326 Monkey Town, Belize. Recently I heard V33BB saying that the correct box is PO Box 33. This box is also shared with V33AB who showed up on the net late in June. The 1996 International Callbook does not show the callsigns of V33BB or V33AB; neither does the June 1996 issue of the GOLIST QSL Managers list.

QSLs Received

R1FJZ/FJL (6 m – DF7RX); E21CJN (2 w – op); JG8NQJ/JD1 (3 w – JA8CJY); XV7SW (6 w – op); 3V8BB (7 m – DL2OBF); 1A0KM (6 m – IK0FVC).

Thank You

Many thanks to my helpers who supply me with the information which makes this column possible. Special thanks to VK2XH, VK2KFU, VK2TJF, VK4LV, VK5WO, VK6LC, VK6RO, VK4 SWL 40370, AL70T, XV7SW and the publications *QRZ DX, The DX Bulletin, The DX News Sheet, The DX News Magazine, 425 DX News and GOLIST QSL Managers list.*

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WIA News

VK Contestants in 1996 World Radiosport Team Championship

For the first time, two Australian amateurs, Martin Luther VK5GN and David Pilley VK2AYD, were among the 52 two-person teams (the "best of the best" HF operators from 30 countries around the world) competing in the 1996 World Radiosport Team Championship, WRTC-96, held in San Francisco over 13-14 July.

The Championship is a sub-competition within the larger International Amateur Radio Union (IARU) HF World Championship contest held that weekend. The WRTC-96 competitors enter the IARU contest as 52 two-person multi-operator, single-transmitter entries. The teams were selected for this competition by national amateur radio organisations, leading contest clubs and an international panel of judges. Among their ranks are the holders of world records in virtually every major HF contest.

All 52 teams operated from a location near San Francisco Bay on flat terrain in relatively close physical proximity, to minimise propagation differences. They all ran 100 watts output into almost identical antenna systems, so that they all competed on the basis of operating skill.

The WRTC stations were given distinctive "1-by-1" call signs, W6A through W6Z and K6A through K6Z, specially approved by the US regulatory authority, the Federal Communications Commission (FCC). Each team will be issuing a distinctive QSL card, and will QSL 100% via the bureau.

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Novice Notes

*Peter Parker VK1PK**

Operating an HF Station – Part Two

Part One of this series covered basic HF operating procedure. This month we take a more detailed look at specific operating activities enjoyed by amateurs. There is also a chance to put what you have learned to practical use in the annual WIA Remembrance Day Contest, being held later this month.

DXing

In amateur parlance, DX means long distance, normally defined by HF operators as being outside one's continent. There are many amateurs who, after establishing a station, enjoy talking around the world. DX operators have a variety of motives; some like experimenting with antennas, while others prefer to chase various operating awards.

As well as having an efficient station, good operating skills are important for the successful DXer. These include a knowledge of radio propagation, being able to discern weak signals, a habit of listening around the band before transmitting, and a sense of timing when calling another station. Clear pronunciation, the use of standard phonetics on SSB, and steady sending on Morse are the hallmarks of the good operator.

Active DXers place great importance on contacting remote, obscure islands. Sometimes, groups of DXers may organise special voyages (called DXpeditions) to such islands, so that other amateurs may work them. These DXpeditions are very costly, and organisers often solicit donations from amateurs and commercial sponsors.

When a signal from a DXpedition is heard, there are often many stations trying to make contact. Quite appropriately, this wall of QRM is called a "dogpile". DXpedition stations may operate "split-frequency". This means that you listen on one frequency and transmit on another. For this reason, serious DXers use transceivers with dual VFOs.

Being able to be heard by a DX station is a matter of strategy and timing; the station might have a particular pattern of operating that you can exploit. When called by a DX station, make the contact brief, as you would in a contest, as many others may be waiting for their turn.

The impression gained so far is that the DXer is a rather competitive, solitary operator. This is not always so; some DXers hunt in packs. Several nets for amateurs who enjoy working DX, exist on the bands. In addition, groups of DXers in some cities have set up early-warning systems called DX clusters. This is essentially a special packet radio link between DXers. Their function is to alert all suitably equipped stations that a sought after station has appeared on the band. Thus, instead of spending time tuning around, one can switch off, watch TV, and only fire up the rig when a rare station comes on.

Contests

A contest is an organised event where the aim is to make the most number of contacts within a given period. Apart from being an exciting and absorbing activity in its own right, contesting allows you to test the efficiency of your station, together with operating skills. With there being many stations on the air at the one time, a contest is an ideal opportunity to have contacts with various countries or call areas so that you can work towards many of the awards on offer.

While most major contests run for 24 hours, some short contests ("sprints" or "scrambles") run for only an hour or two. These short contests have simple rules, and are good fun.

Contest contacts are much shorter than most other amateur radio contacts; all you need to exchange with the other station is a five or six digit number, consisting of a signal report followed by a serial number starting at 001. This serial number increases by one for every contact you make, thus you might send 57003 to the third station you work in a contest. The object is to make as many contacts as possible within the contest period.

The following is a typical example of an SSB contest exchange between VK1AA and VK6AA.

(VK1AA): CQ CQ CQ RD CONTEST, THIS IS VK1AA. *(VK1AA seeking a contest contact)*

(VK6AA): VK6AA *(VK6AA responds)*

(VK1AA): VK6AA, THIS IS VK1AA. MY NUMBER TO YOU IS 57011. *(VK6AA's signal is 5/7 and VK6AA is VK1AA's eleventh contact in the contest)*

(VK6AA): THANK YOU FOR THE 57011. MY NUMBER TO YOU IS 58001. *(VK1AA's signal is 5/8 and this contact is VK6AA's first in the contest)*

(VK1AA): 58001 RECEIVED. 73 AND GOOD LUCK IN THE CONTEST. *(Contest contact ended successfully and both stations enter the contact in their logs. VK1AA continues calling CQ, while VK6AA looks for other stations calling CQ)*

On CW, the procedure is similar, except there is a heavy use of abbreviations to save time (see Part One). Very often, nines are sent as "N", and zeroes as "T". Thus, the first station you work might receive a "5NNTT1" number from you, which is the equivalent of a 59001 report on phone.

To formally enter a contest, a log of all contacts must be submitted. A sample log sheet, suitable for most contests, is shown in Figure 1. Normally, a front summary sheet, which shows your name, callsign, total score and declaration that you operated ethically is stapled to the front of the log; the format for this is generally specified in the contest rules. The major WIA-sponsored Australian

Name.....
Callsign.....
Contest.....

Date	UTC	Band	Mode	Callsign	RST No sent	RST No rec	Points

Figure 1 – Sample Contest Log Sheet. This log sheet is typical only, but should be acceptable for most contests. Read the rules applicable to the particular contest for more information.

contests are: Remembrance Day Contest (August), VK-ZL-Oceania DX Contest (October), Ross Hull VHF/UHF Contest (December/January), VHF/UHF Field Day (January), John Moyle Field Day (March), and VK Novice Contest (June).

Certificates are awarded to contest place-getters. Up-to-date information on these and other contests can be found elsewhere in this magazine. Of particular note is the WIA Remembrance Day Contest, on the weekend of August 17/18. The full rules appeared on page 33 of last month's *Amateur Radio*. This is Australia's most popular contest, and the Contest Manager would be glad to receive a log from you.

Awards

An award is a certificate received for having contacted a specified number of stations in a certain geographic area, or on a particular mode. They range from the local club award to the internationally-recognised, and from the easy to the almost impossible. The most well-known international award is the DXCC (DX Century Club), issued to those amateurs who have proved that they have contacted at least 100 countries. Another award gaining prominence is the "Islands of The Air" (IOTA) award for contacting a specified number of islands.

The WIA has its own awards program, with certificates issued free to members. WIA awards available include: WIA DXCC, Worked All VK Call Areas (WAVCA) Awards (VHF and HF), Worked All States (VHF), Australian VHF Century Club, WIA Antarctic Award, and WIA Grid Square Award

Refer to the *1996 Australian Callbook* for further information on the above awards. Those interested in collecting awards should maintain a log of stations worked. Note that QSL cards are required to show proof of having worked a station; log entries alone are not sufficient.

QSLing

A long-standing tradition has been to exchange QSL cards after the completion of a contact. The practice comes from the days when working DX (usually with low power and home made equipment) was much more of an achievement than it is today. Many overseas stations tend to be almost obsessed with QSLing, to the point that they ask for a card even if filling in and sending the card takes longer than the original two-minute contact. In contrast, many VKs are more laid back, only sending cards for the more memorable contacts. It may be for this reason that we have the reputation of being bad QSLers.

Nevertheless, QSLing is almost mandatory for those who aspire to collect awards, which normally require cards to show evidence of contacts claimed. Also, the new amateur will often want to decorate the shack with cards received from distant countries. After a wall has been "wallpapered", the novelty often wears off, with many an amateur storing cards in shoe boxes in a seldom-opened cupboard.

Every amateur should have a stack of their own QSL cards, even if they are only sent infrequently. Cards should be of postcard size, and include your callsign, address and (preferably) your Maidenhead grid square locator number. It should include spaces for the callsign worked, UTC date and time, signal report, band, and mode used. Spaces on the card for your equipment, antenna and power output are also desirable. Figure 2 shows a typical commercially-printed QSL card.

There are two ways of sending cards. They may be posted via the normal mail system. While fast, it is expensive. Fortunately, the WIA and its sister societies have established QSL bureaus for use by members. These bureaus send and receive QSL cards in bulk, so postage costs are reduced. Though sending cards "via the bureau" is slower than QSLing "direct", the money saved is considerable, particularly if you are an avid DXer.

QSL Bureaus consist of two sections; Inwards and Outwards. The Inwards section receives cards from overseas and interstate, and distributes them to members, while Outwards accepts cards from you and forwards them to bureaus in other states/countries.

You can collect cards that have arrived for you from your Divisional Office, or WIA or club meetings. Alternatively, you can have your cards mailed to you by sending a SASE to the QSL Bureau Manager. QSL Bureau procedures vary slightly between states; some Divisions may charge a nominal sum per card sent, while others charge nothing. Addresses for QSL bureaus are listed periodically in this magazine, and in the WIA Callbook *(Reference Two)*.

QRP

QRP operation is the use of low transmit power. Its adherents gain a special pleasure from working across the country or across the world with a couple of watts of power. QRP, defined as the use of five watts or less on CW, and ten or less on SSB, is ideal for portable operation, where lightweight transmitting equipment must be used. In addition, the low-cost and simplicity of QRP equipment makes building one's own transceiver a practical proposition, particularly for CW operation.

Practically the full range of operating activities, such as DXing, contesting and VHF operation, can be done with QRP. An efficient antenna and good operating skills are required for maximum success. Ownership of special equipment is not required; QRP can be obtained from many 100 watt transceivers that have an external ALC socket.

QRP in Australia is promoted by the CW Operators' QRP Club, which publishes a quarterly magazine, runs nets and sponsors contests for QRP operators. Those seeking further information on QRP should obtain a copy of April 1995 *Amateur Radio (Reference 1)*.

Conclusion

This short series has, I hope, given you a better knowledge of HF operation. As well as reading about it, the best way to learn is by listening and operating yourself. The appearance of this column has been timed to coincide with the Remembrance Day Contest, to maximise this opportunity.

References

1. *Lewis M, QRP – The Crest of the Radio Wave, Amateur Radio, April 1995*
2. *1996 WIA Callbook*

**7/1 Garran Place, Garran ACT 2605*
VK1PK @ VK1KCM.ACT.AUS.OC

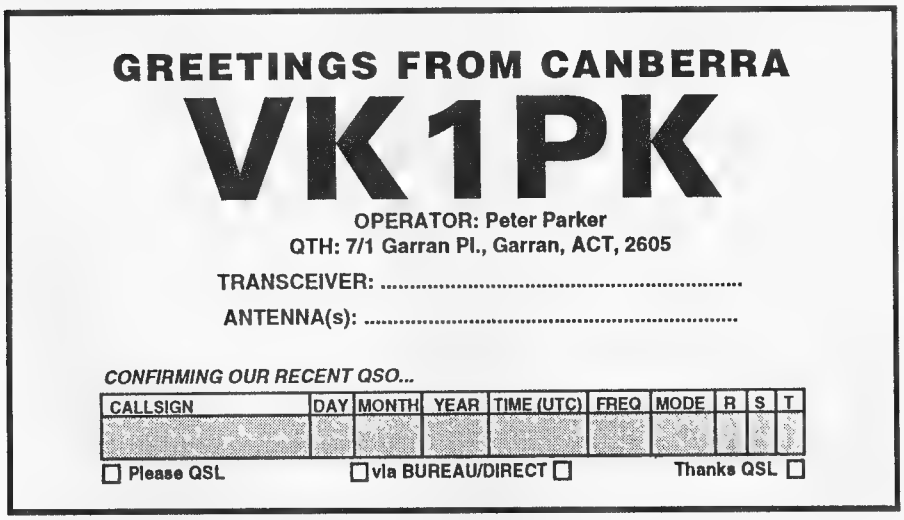

Figure 2 – A typical commercially-printed QSL card

Packet World

*Grant Willis VK5ZWI**

Introduction

Welcome to this month's *Packet World* column. Over the past few issues we have looked at packet radio and what makes up packets. One of the services mentioned in that series was called "NET/ROM".

NET/ROM is a packet radio "networking" tool, which enables packet stations to be linked together using an intelligent system so that multiple hop connections can be established on a reliable basis, much more reliable in fact than digipeating. NET/ROM achieves its connection reliability by using AX.25 (basic packet protocol) acknowledgments and retries on each leg of the connection, rather than end to end over the entire connection as would have been the case with normal digipeating.

NET/ROM – A Brief Overview

One of the traits of larger packet radio networks is that it can become difficult to figure out how to connect from station A to station B via stations C, D, E, F, G, etc. There is also a problem in large networks of how to automatically teach stations how to correctly route packets from A to B via C, D, E, F, G, etc. NET/ROM overcomes this by sending out "routing broadcasts" periodically, which other NET/ROM nodes listen to.

In these broadcasts (or beacons) the nodes transmit information about all other NET/ROM nodes they have heard and also nodes that the adjacent nodes have heard. Each broadcast assigns a quality to each broadcasted node record which is decreased the further away you are (in numbers of hops) from the original node. Using these quality numbers, coupled with the adjacent node lists, a node is able to determine the most direct path between A and B, and find alternate routes in the event of a link failure. A more detailed look at the structure of the NET/ROM protocol will appear in a future edition of *Packet World.*

How is a NET/ROM Node Labelled?

NET/ROM nodes have two forms of identification. The first (and most obvious) is the Node's callsign. This is the callsign people should connect to access their local NET/ROM network. Many NET/ROM nodes use an SSID (Station System ID Number), for example "VK5TTY-2", "VK4RZB-8", etc.

The second form of identification, only used internally within the NET/ROM network, is the NET/ROM Node Alias. This alias is a six character label that often will give some indication of the area or type of service the node provides. Some examples include "ADLSBB" (Adelaide Southern BBS), "MELAUS" (Melbourne Australia), "WILL2" (Mt William Port 2), etc. When you issue connects within a NET/ROM network, you can use either the callsign of the distant node, or the alias in the internal network connect command.

How Do You Use a NET/ROM Node?

NET/ROM is relatively easy to use, once you are familiar with the concepts. The following examples were recorded "off air" from the NET/ROM network in Adelaide. It should be noted that different NET/ROM software packages will quite often have slightly different commands, but most are very similar. The software used on the Adelaide system was written by John G8BPQ.

The example sequence starts with my station sitting on 144.900 MHz in Adelaide, which gives me access to the VK5TTY-2 NET/ROM node.

I will indicate commands I typed in at my Keyboard with the string "<**" next to them.

Step 1 – Connect to your local NET/ROM Node – Making an UPLINK connection.

I connect here to my local NET/ROM node and issue the "?" command to request a command list. This is a good step if you are connecting to a NET/ROM node for the first time.

*cmd:C VK5TTY-2 <**
**** CONNECTED to VK5TTY-2*
Welcome to the VK5TTY Packet Switch, Adelaide's South LAN Network Node.
Type ? for list of available commands.
*? <**
ADLS2:VK5TTY-2} BBS CONNECT BYE INFO NODES PORTS ROUTES USERS MHEARD

Step 2 – The INFO command

Many NET/ROM switches have a small text area stored in them to tell you a little about the switch. You can use the INFO command on a G8BPQ NET/ROM switch (and others) to get this text message.

*INFO <**
ADLS2:VK5TTY-2} VK5TTY-2 Adelaide South LAN Packet Switch
There are several services available on VK5TTY. For BBS access you connect to VK5TTY on either 144.900 or 439.050 or connect to ADLS2 and then type C ADLSBB. To use TCP/IP on VK5TTY you can use VK5TTY-1 [44.136.175.1]

This is the response to the Info command. It returns a short piece of text telling you about the switch.

Step 3 – The USERS command

The USERS command will print out a list of what stations are connected to the local switch, and where their connections are going. It also, in this case, prints out the node software version.

*USERS <**
ADLS2:VK5TTY-2} G8BPQ Network System V4.06a (120)
Uplink 1(VK5ABS) <-->
Host01(ADLSBB:VK5TTY)
Uplink 1(VK5ZCF) <-->
Host02(ADLSBB:VK5TTY)
Uplink 1(VK5ZWI)

The USERS command (can be abbreviated to U) lists all the users linked to the switch you are currently linked to (can be your local switch or a remote switch you have connected to). The components of information shown here are:

Uplink 1(VK5ABS) Tells you that VK5ABS has connected to the VK5TTY system on PORT 1 (144.900).

<--> Tells you that the connection is working. The other possibility is <~~> which means the link is being set up.

Host01(ADLSBB:VK5TTY) Tells you that the station is linked via the switch to the VK5TTY BBS. Any link made to "Host" is a connection to another task within the same computer as the switch.

Step 4 – The PORTS command

When there is a NET/ROM node with more than one radio attached to it, (usually in the case of G8BPQ switches, or NOS based NET/ROM switches), you may also need to know what radio ports are available for some commands. In the case of G8BPQ, the "Downlink" connect request will require you to tell the switch which radio port you want to issue your connection on. The port number is also useful in the MHEARD command.

*PORTS <**
ADLS2:VK5TTY-2} Ports:
1 144.900 ADELAN South Users
2 439.050 ADELAN Backbone
3 TCP/IP Link & Network Port

The ports command lists each radio and

internal port that is available. In G8BPQ, each port has a number, while in other systems the ports may have short text based labels such as "pbbs" or "ax0" for example.

Step 5 – The NODES command

The NODES command is the first step to exploring your local NET/ROM network beyond your local switch. This command lists all other known nodes with their callsign and their alias. Depending on how big your local network is, and how your local SysOp has chosen to set up his node, you can have very long nodes lists or very short ones. When there are large numbers of nodes, it is possible that there may be quite a few which are either very, very slow (depending on how many hops away they are), or some you simply cannot connect to (either because the only link to them has failed or because the routes are congested). When you begin to explore a NET/ROM network, don't expect all the links to work all of the time.

*NODES <***
ADLS2:VK5TTY-2} Nodes:
ADL7BB:VK5EX ADL7GW:VK5EX-2 ADLC2:VK5WI-2
ADLCBB:VK5WI ADLCIP:VK5WI-11 ADLIP:VK5XXX-11
ADLN2:VK5LZ-2 ADLNBB:VK5LZ ADLSAT:VK5ZK-2
ADLSBB:VK5TTY ADLSGW:VK5ZK ADLSIP:VK5TTY-11

The NODES command (can be abbreviated to N) lists all the available NETROM Network stations. These are other Nodes that you can link to from this node to get access to other remote BBS systems and to link to users on other frequencies.

Step 6 – Connecting to a distant Node – Making a CROSSLINK Connection

At this point I decided I wanted to link to the VK5LZ-2 NETROM switch. VK5LZ-2 is on another radio channel. Since the connect is to another NET/ROM node, I don't need to tell my local node (VK5TTY-2) what port to make the connection on since, for connections between nodes, NET/ROM is able to automatically select the right port, based on the nodes broadcasts received earlier.

To make the connection I entered the CONNECT command as follows:

*CONNECT VK5LZ-2 <***
ADLS2:VK5TTY-2} Connected to ADLN2:VK5LZ-2
Welcome to VK5LZ's Packet Switch, Adelaide North LAN Network Node.
VK5 14.109 Oceania HF Network Gateway
Type ? for list of available commands.

When the link is complete, switch ADLS2:VK5TTY-2 will tell me that I am connected to VK5LZ-2 and then VK5LZ-2 sends its sign-on banner. Not all nodes send a banner; it will depend on software types and configurations. It sometimes will take a little while to make this link depending on how busy the intermediate links are.

Step 7 – Exploring a distant Node

The commands on VK5LZ-2 are the same as on VK5TTY, so we kept exploring. To see what radio ports are available on VK5LZ-2 I entered the PORTS command again.

*PORTS <***
ADLN2:VK5LZ-2} Ports:
1 144.800 ADELAN North Users
2 439.050 ADELAN Backbone
3 14.109 Oceania HF Network

Now, if I wanted to see what stations are available on each frequency, I can use the MHEARD command. To use this command I type "MH x" where I substitute a Port Number for X. Some examples are shown below. Note that the times given were in UTC.

*MH 1 <***
ADLN2:VK5LZ-2} Heard List for Port 1
VK5ATB 23:47:09
VK5ZLJ 23:41:23
VK5FI 23:37:41
VK5ZSV 23:32:44
VK5ZAR-1 23:20:15

Step 8 – Making a DOWNLINK connection

After I received the heard list, I decided I wanted to connect to VK5ATB – a NON NODE station who was using 144.800 (remember that my own station is still on 144.900). To connect to a NON NODE station I have to put the PORT NUMBER between my C command and the callsign of the station I want to connect to. If the station is no longer on air, I get the message "Failure with ***" sent to me. If the station is there, I get a "Connected to ***" type message, following which I am able to directly exchange commands with the distant station. In the example below, the path to VK5ATB failed, but the path to VK5ZAR worked and I was connected to VK5ZAR's PMS station.

*C 1 VK5ATB <***
ADLN2:VK5LZ-2} Failure with VK5ATB
*C 2 VK5ZAR-1 <***
ADLC2:VK5WI-2} Connected to VK5ZAR-1
Logged on to VK5ZAR's Personal Message System
WHEN CONNECTED PLEASE LEAVE A MESSAGE – END WITH CTL-Z OR /EX
CMD(B/H/J/K/KM/L/M/R/S/SR/V/?)>

Using a NET/ROM Node – Summary

Using a NET/ROM node is relatively easy. To make a connection across the network to another station, you simply need to remember three basic steps. Firstly, UPLINK or connect to your local node. Secondly, CROSSLINK connect to the distant node where you want to ultimately downlink from, and then thirdly, DOWNLINK to the station you want to connect to. The last step of "DOWNLINKing" is not required if you are connecting to a NET/ROM node that provides a service like a BBS or NOS station directly.

This has been a very simplified view of how to use a NET/ROM network. Hopefully I have given you enough to give it a try and experiment for yourself. One thing everyone should remember is that if you get lost wondering around a NET/ROM network, you can always force your own packet station to disconnect from your local node, and in doing so, your local node will close all other connections you have set up.

Who Should Run a NET/ROM Node?

If you have a look on some regions nodes tables, you may find many NET/ROM nodes listed that don't provide any benefit to the network. NET/ROM works best when there are not too many poor quality "alternate routes" available.

This means that the stations who should use NET/ROM software and enable NET/ROM routing and broadcasting, should really only be those stations providing paths between frequencies, major network services (such as full BBS stations), or network repeater stations. Individual private stations are best not using NET/ROM, as it can have an adverse affect on the packet system through too many nodes being broadcasted, too many alternate routes being available and, when links fail, the increased possibility of routing problems caused by alternate routes which really were not able to be used for traffic.

If you are going to run a NET/ROM node, talk to your local packet SysOps first and see if it is really going to benefit your local area. If not, then disable the NET/ROM function. NET/ROM does add 20 bytes of overhead to every packet you transmit, limiting maximum packet sizes from 256 bytes to 236 bytes; so, using it to access your local BBS or node only contributes unwarranted congestion to your local system. If in doubt, don't enable NET/ROM!

Conclusion

There are many more commands and useful tricks in navigating a NET/ROM network. If you want to find out more, contact your local packet radio club or local system operator. They should be able to tell you a little bit more about your local system.

Cheers de Grant VK5ZWI
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ar

Spotlight on SWLing

*Robin L Harwood VK7RH**

I have been listening on shortwave since the mid-fifties and have heard how congested the bands became, particularly at the peak of the Cold War. The allocated broadcasting segments were crowded with stations, all trying to get their programming across the ever-increasing electronic counter measures drowning them out. Broadcasters countered by placing extra channels which further impinged on other stations. It usually was a case of the strongest signals prevailing. In the late eighties, a significant decision was made in the Kremlin to abandon jamming of foreign broadcasts in the languages of the USSR and its allied nations. The result of this was less congestion on shortwave.

This was an important time historically, as we now know, for the political situation within Eastern Europe irrevocably altered. There was now a single German state with its capital in Berlin. The nation of Czechoslovakia split into two and Yugoslavia also disintegrated into warring states and chaos. In August 1991, the USSR ceased to exist and each republic became a sovereign state, commencing with the Baltic states of Lithuania, Estonia and Latvia.

The usage of shortwave broadcasting into these regions was now made somewhat redundant by the placement of programming over domestic AM and FM networks. The clandestine US-backed "Radio Free Europe/Radio Liberty" which was the primary target of the jammers, also relocated from Munich to Prague. They established their own broadcasting network, although its influence has waned mainly due to the growth of a strong and independent commercial structure within the former Soviet bloc. There were also changes to the American external broadcasting structure which further diminished their powers.

There has also been a technological revolution which contributed to less congestion. The 1993 WARC meeting in Spain decided that Morse Code was no longer a requirement for maritime communications and it has since been rapidly disappearing. One of my favourite haunts has been between 8.2 to 8.7 MHz which, in its heyday, was extremely congested and active. Have you listened down there lately? You will be surprised at the number of stations who have already departed. The Royal Australian Navy has permanently closed VHP/VIX at Belconnen on 8478 kHz. They have also delisted Morse as a requirement for their signallers. VIS26 was another easy catch on 8521 kHz and that has now gone, although VIP in Perth is infrequently there. Coastal stations, such as ZLB in Awarua (NZ) on 8504 kHz have gone QRT. 9VG (Singapore), VPS/VRN (Hong Kong), GKA (Portishead), and most of the commercial Japanese stations (JOR, JCS, etc) no longer employ CW yet are still using SITOR on HF. However, the Americans are still there and picking up most of the commercial traffic on CW.

The SITOR mode is still popular on HF with some of the existing players, such as VIP, still operationally active. An American commercial outlet, Globe Wireless, has established a chain of remotely operated stations in Sweden, the US, Newfoundland, New Zealand and the Philippines, all controlled from Palo Alto, California (ZLA is near Lake Taupo but is unmanned).

Although the increasing trend towards INMARSAT makes HF redundant, there are still some nations and/or operators who economically prefer using an HF based service. Also, there is a trend away from HF Seaphone to INMARSAT, although it is still available despite the number of users having markedly decreased.

In last month's column, I did mention that the South African "Channel Africa" shortwave service was threatened by budgetary cutbacks. There was an outcry from its loyal listeners, as well as from African governments, which led to the decision being reversed; South Africa will continue to have an external voice on shortwave. It is one of the very few external shortwave stations on the continent capable of broadcasting to a wider audience. Will we see the re-introduction of services beyond Africa? I certainly hope so.

Also, programming on the BBC World Service could be significantly re-organised, if a proposal is adopted to restructure the BBC. It would mean that production of all programming, that is on radio and television, would be done independently from the organisation, presumably by contract or tender. Whether these proposals are implemented will depend on legislation in the UK Parliament.

I notice that the Voice of Russia now has its own Web page on the Internet. It can be found at *http://www.vor.ru.* It has the latest World Service information and programming information in English. Most of the major stations, and some of the minor outlets, have either their own Web pages or an e-mail address. Look for Thorsten Koch's Internet Guide to International Broadcasters at *http://www.informatik.uni-oldenburg.de/~thkoch/* or on *rec.radio.shortwave.*

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Ionospheric Update

*Evan Jarman VK3ANI**

Solar Activity

Solar activity during the last quarter was at very low levels and continuing to decline. The Ionospheric Prediction Service reported a M3.6 solar flare observed at 0446 UTC on 22 April with an associated minor shortwave fade-out over Australia. The monthly sunspot number for May was 5.6, the lowest seen on this cycle. Four more reverse polarity sunspots were observed indicating the upcoming cycle 23.

Ionospheric Activity

There were no significant ionospheric depressions during the last quarter.

T Index

The Ionospheric Prediction Service did not revise the T index values during the last quarter. The graph of values shown last quarter still applies (*Amateur Radio,* May 1996, page 47). This month's HF predictions show the T index, averaged over the month, has started to increase.

Information via Internet

The Ionospheric Prediction Service has established a large collection of information pages on the Web. The IPS information and educational pages contain information about the sun, the effects of space weather on a range of systems, and a range of more general topics. Also included is more current data from the IPS monitoring network.

The IPS pages are a valuable source of material for those wanting to learn more. The material can be accessed on the Web as *http://www.ips.gov.au/papers.* For those on the Internet and interested in propagation, this is a good place to start surfing.

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Pounding Brass

*Stephen P Smith VK2SPS**

Contests

The weekend of 15-16 June 96 saw the running of the VK Novice and CW Operators QRP contests. It was an exciting evening with many contacts made. The standard of operation from Novices during the contests was extremely high and the number on frequency was very pleasing. I would like to say well done to all who participated in the events. Results of the contests will appear at a later date.

A reminder for the evening of 3 August when the West Australian Annual CW Contest will be held; I'll be on frequency, so give me a call. For the computer orientated, and those of you who have access to the Internet, I'm compiling a list of Morse related subjects which I hope to finalise soon.

Feedback

Last month I concluded the series on a Key Construction project. I would appreciate any feedback in relation to this project, especially any difficulties you may have encountered and overcome, so I can pass on this information to other readers who may have encountered similar problems. Talking about key construction, you may be aware that I collect and restore telegraph keys and some of their related equipment. Perhaps readers may be interested in restoration techniques and having a go at restoring that old key stored in the garage or shed.

Key Knob Repairs

In this issue we will look at knobs and thumb pieces for both manual and semi-automatic keys. In coming issues I will continue with wood and metal bases and conclude with mechanical restoration.

The following techniques are for the Bakelite variety of knobs and thumb pieces, usually a dull black as found on older keys and jiggers.

Keys produced today typically use perspex or plastic and are best repaired using a plastic solvent-based cement. This technique can also be used to fill small chips or gouges in old pump knobs.

Method

The method of repair is to use a mixture of clear, two part (resin and hardener) epoxy which has been darkened with a small amount of lampblack or ebony dust. The ebony dust can be obtained from firms which sell supplies to stringed instrument makers and inlayers.

Materials Required

Epoxy, lampblack or ebony dust, waxed paper, two small wooden boards (to hold thumbpieces together) and a small bench vice.

Procedures

(1) The two pieces of wood are used to clamp the thumb piece in the bench vice by placing the epoxied thumb piece between them. Before proceeding, use double sided tape to attach a piece of waxed paper to the surface of each piece of wood where it will contact the thumb piece; this will keep the thumb piece from sticking to the wood as the epoxy hardens.

(2) Mix some two-part clear epoxy with a small amount of lampblack or ebony dust. This ensures that any exposed epoxy is dull black after sanding. Take care to use only a small amount, just enough to darken the epoxy. If you don't have lampblack or ebony dust, you can use epoxy mixed with graphite. However, use extra care so that you have a minimum of exposed epoxy after drying as it will look shinier than the dull black thumb piece.

(3) Spread the epoxy mixture into the crack in the knob or thumb piece, carefully wiping off as much excess as you can.

(4) Clamp the thumb piece between the two pieces of wood in a vice, waxed paper sides against the thumb pieces and leave for a few hours.

(5) When the epoxy dries, the only thing stuck to the thumb piece will be the waxed paper, which can be carefully removed.

(6) Use fine sandpaper and a Stanley knife to remove any rough edges or any excessive epoxy. If carefully done, a repair of this nature will be almost invisible, unless some small chips have broken off around the edges of the crack. This is where the epoxy, plus ebony dust, mixture will pay off, because it will fill in the chipped areas and, when roughed up with sandpaper, will look like the original product.

From time to time I'll introduce different key repair techniques.

Books

Moving along, I would like to mention two new books which have just been released, "Morse Code Instruction Manual" by Robert W Betts N1KPR, and its companion book "Ham Stories" also by the same author. At the moment I'm in the process of reading them and will report my findings in a later issue. Cost is $US24.95 for the first book and $US12.95 for the second, post paid from the USA.

OHTC

I wonder how many readers are aware of the OH-Telegraph Club (OHTC)? This club was founded in June 1994 with the aim of developing and spreading QRG (High Speed) CW operation in Finland, and around the world under favourable propagation conditions.

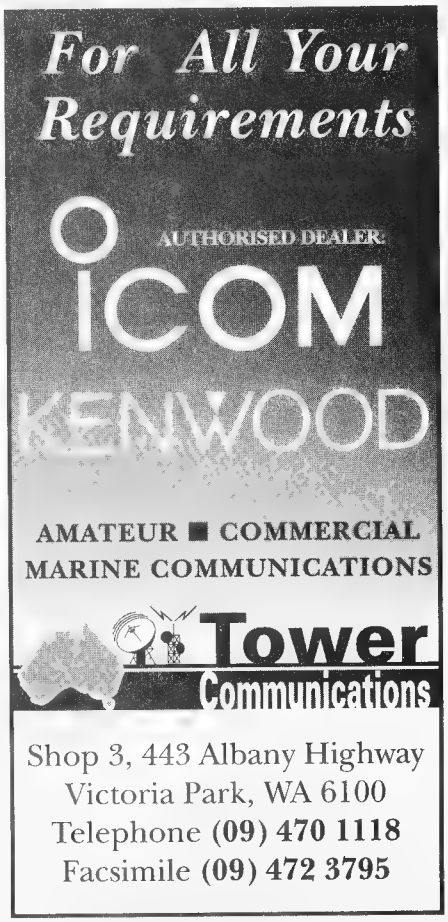
The President of the club is Seppo Niemispelto OH6VR. The club's motto is "CW Forever". Club station OHO-9ABD can be heard on Saturdays on 14.055 MHz between 1300 and 1500 UTC. Non members are invited to call in using a telegraph speed of 30 wpm or higher using BK or full QSK.

Further information about OHTC can be obtained by writing to the secretary, Janne Karresuo OH6LBW, Timonviita 3, 60/50 Seinjaki, FINLAND.

Next Month

Next month we will look at Iambic Paddles, covering early history developments, what's on the market today, and how to use and correctly adjust them. I hope to include a photograph of my own Bencher Paddle wired for left and right hand operation via a DPDT switch.

**PO Box 361, Mona Vale NSW 2103*



Repeater Link

*Will McGhie VK6UU**

CTCSS Encoder Mk2

Following on from last month's *Repeater Link* on CTCSS encoders, here is an alternate design. This encoder uses the simple phase shift oscillator design, with a small change to allow for the frequency to be varied.

Phase Shift

For those who do not understand the operation of the phase shift oscillator, here is a short description. The phase difference between the base of a transistor and the collector is 180 degrees. This means that any signal fed back to the base from the collector is negative feedback. The collector output opposes the input to the base of the transistor. In order for a circuit to oscillate, positive feedback has to be fed back to the input. The network of C1, C2, C3, R1, R2 and "R3" provide a total phase shift of 180 degrees. R3 is the input impedance of the transistor.

Each single capacitor/resistor combination produces about 60 degrees phase shift. It is possible, with no load on a capacitor, to produce 90 degrees phase shift, but some load must be placed on the capacitors in the circuit. 60 degrees phase shift is the result. The three RC combinations result in 180 degrees, and this, added to the 180 degrees between collector and base, produces positive feedback between collector and base. The circuit oscillates and the frequency of oscillation is determined by the values of C and R.

All capacitors are MKT types, and this is most important to maintain frequency stability.

Lower Distortion

The phase shift oscillator does not produce a good sine wave output. The waveform is clipped on the negative half of the cycle due to overdriving of the transistor. The amount of feedback (drive) can be reduced, resulting in a greatly improved sine wave. However, if the amount of feedback is reduced to the point where there is no clipping, the oscillator is at the point of not oscillating. Any component change due to ageing or temperature can see the oscillator not oscillating.

In the circuit a small amount of negative feedback is introduced to the circuit by R4, the 47 ohm resistor. The output waveform is improved considerably by the addition of this resistor. This resistor can be increased to a point where the oscillator output is a near perfect sine wave. However, if the temperature is lowered, the oscillator stops oscillating due to the reduction in gain of the transistor. As a compromise, 47 ohms was chosen.

To improve the output waveform further, a two stage RC lowpass filter is added between the oscillator and the emitter follower. This filter is made up by the 150 k and 2 nF combinations. The waveform looks good and contains little harmonic content.

Frequency Range

The frequency of the phase shift oscillator can be varied over a modest range. By simply varying one of the frequency determining resistors, the frequency of operation can be moved. Using the multiturn pot shown, the oscillator can tune from about 90 to 150 Hertz. Resistor R2a (3k3) prevents the 100 k multi turn pot (R2b) from going to zero and stopping oscillation. Any range can be selected simply by changing the values of the frequency determining components. This design is centred on 123 Hertz.

Output Level

Level output is about 1.5 volts peak to peak. This should be enough to drive most FM transmitters.

CTCSS has to be mixed into the audio circuit that feeds the FM modulator, close to the varicap diode. An isolating resistor needs to be added between the output level control and the FM transmitter to prevent loading down the audio circuitry.

CTCSS on Your Repeater

The two encoder circuits have been presented to encourage repeater managers to install CTCSS encode facilities on their repeaters. Users require a CTCSS decoder in their equipment in order to utilise this mode of operation.

Believe me, it is worth the effort. Your mobile will no longer be making all those noises while monitoring the local repeater.

**21 Waterloo Crescent, Lesmurdie 6076*
VK6UU @ VK6BBR

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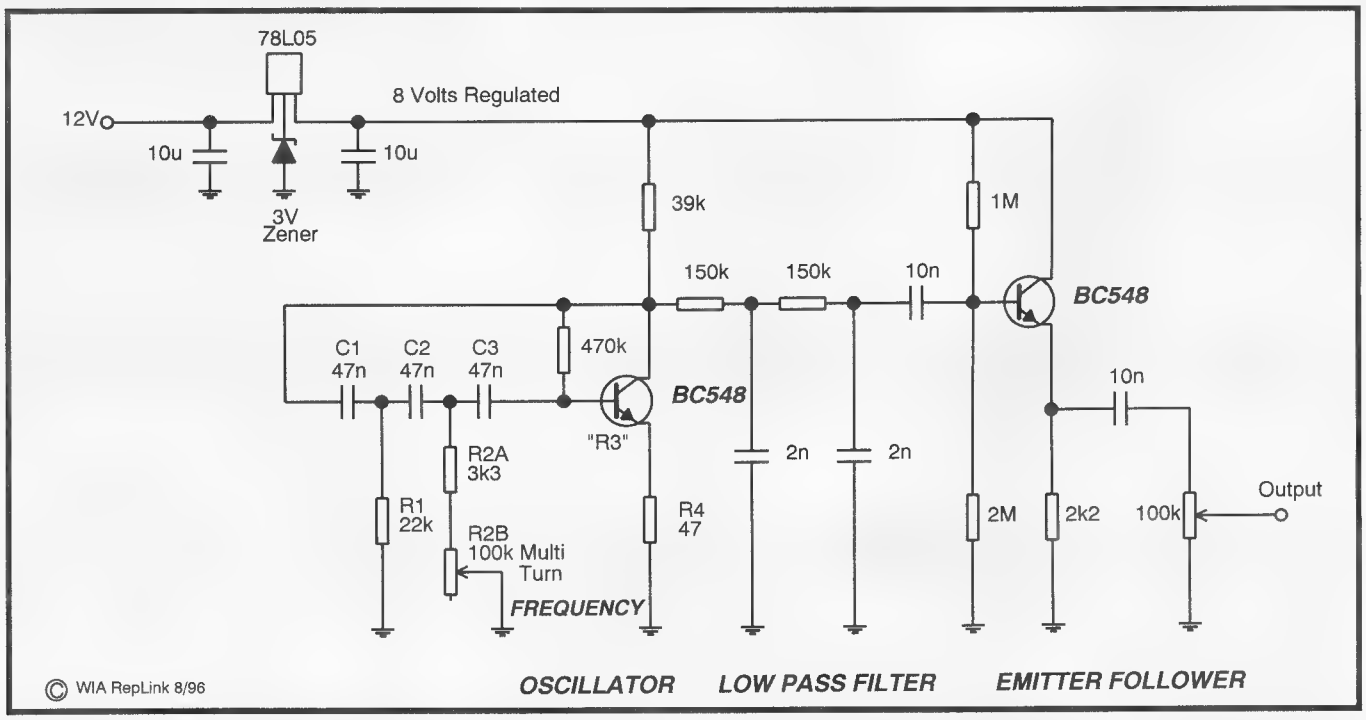

Figure 1 The alternate design CTCSS decoder.

VHF/UHF – An Expanding World

*Eric Jamieson VK5LP**

All times are UTC.

Six Metres

John VK4KK has been making intermittent contacts via Es. On 11/6 at 0100 VK4JH and 0300 0400 VK7XR. On 30/6 at 0330 he worked VK3FRJ and VK7KAD on 52.525 FM! John makes a point that stations can still be worked on 52 MHz and on 52.525 in particular. Not everyone has migrated to 50 MHz and in some cases the only equipment available is FM so the channel continues to be used.

Packet Messages

From Brisbane area, **Mick VK4JHM** reports that on 7/6 at 1045 he monitored FM operation on the 144.200 MHz secondary call channel; operating continued despite polite requests to move.

It is worth noting that this frequency has been recommended for aircraft scatter operation. Large expensive antennas with very high Q are used for these experiments. This implies that shifting frequency is out of the question. FM on the other hand has plenty of scope to move as most stations use a broad-band vertical antenna. The reason for operating on the SSB portion of the band is pager interference!

It does seem a pity that FM operation takes place so low in the band; it certainly is not in keeping with band-plan arrangements. The usual winter Es period appears to be producing a variety of signals as the next few reports indicate.

13/6: VK3RMV beacon on 50.0535 has been re-activated for the trans-Tasman mid-winter Es. Also, **Steve VK3OT** reports that: *There will be occasional tests on the proposed 50.293 beacon for next summer's South African attempt in conjunction with the new Bunbury VK6 beacon on 50.306. Power is 12 watts to a 3 dB gain vertical collinear 13 metres above a hilltop which is 330 metres above sea level, QTH QF12ah Mt Baimbridge, north of Hamilton, Victoria. Long 142° 01′, lat 38° 27′ South.*

From **John VK3BQS:** *It appears that the winter E season has begun. Today 29/5 at 0300, ZL Channel 1 video and audio were heard at S9+, and VK7RAE/b (on backscatter), VK4RGG/b (S9+), VK4ABP/b (in the noise). VK4 Ch 0 S9++, but VK4BRG/b was not heard. By 0400, ZL had disappeared, but VK4 TV was even stronger and VK4ABP was pinning the needle. This opening probably lasted quite awhile, as the TV was still audible at 0600. No amateur signals were heard despite several calls toward both ZL and VK4 at 0300 and 0400 hrs.*

John VK4FNQ in Townsville reports hearing: *The Alice Springs beacon VK8RAS on 50.046 on 13/5 at 0650 5x9, 0713 4x1, 0716 5x9 and 0718z nil.* [Rather up-down signals ... 5LP]. *No replies to calls on 50.110 and no other signals heard on the band. This is the first signal I have heard since 13/4.*

From **VK4IF** and the Brisbane VHF Group: *Over the last two days very strong meteor "pings" have enabled stations on 144 MHz to the south of VK4 to be received. On 3/5 (UTC) in Brisbane, VK2TWR was heard at 5x9 for 15 seconds and VK3AUU 5x5 for 5 seconds. On 4/5 (UTC) VK3AMZ was heard 5x7 for 5 seconds. These reports were the strongest heard. Many small "pings" were received between 2200 and 2230 on the specified days.*

Via the *Internet Six News* **Geoff GJ4ICD** in Jersey reports: *14/5: From 2000 to 2200 JX7DFA was up to S9 in G, GM, OZ, SM, PA0, etc but nothing in GJ.*

Leon F1HKN and Pierre F1CGQ both wish it be known that French stations can only operate from 50.200 to 51.200 MHz and ask that other stations either come up to their section or work split from below 50.200 to say 50.210. They miss many contacts due to this frequency difference. VK stations should remember this when next the band opens to Europe.

19/5: 2200: Another good morning, 4X6UJ in for an hour at S9, EH8BPX S9+, EH, CT, YU, etc, also during the afternoon the band opened to 9H, LZ, YU on 144 MHz. Opened later on six to ER5, UT3, 4X, EU6, RA3YO. G3SYC worked 7Z5OO, 2M1EJK worked K4DRY (think this was IK4DRY) and 144 MHz opened again to LZ.

20/5: Today brought results from the USA to EH8BPX, that must be one of the best distances so far this season worked at about 5000 km, 5T5BN was hrd/wkd in the UK at 3600 km, also 4X6UJ (3600 km) was pounding in for hours, JX7DFA worked in the UK and PA0....also the JW beacon was reported by G3KOX. The best news was that Finn OZ4VV heard the VE8 beacon at 2100 for 30 mins via Ae!

20/5: New beacon in Mexico: Call is XE1KK/b on 50.0225 MHz, grid EK09ik, power 20 watts, antenna omnidirectional (AR-6).

22/5: Band humming again. AM: Several stations are reporting 4X, OD5, and SV action this morning; I heard 7Z on 50.110 fast CW underneath 4Z4TT. Later (PM) the USA had a tremendous opening lasting for many hours. The "Report of the Day" goes to KP4A who it appears had a cross Atlantic contact with EH8BPX.

23/5: SPs are reporting R3VHF and EU1AA at 0700z; PM: What an opening! Double hop to 4X, 5B4, EH8, OD...etc, and on 144 MHz wkd SV0, SV2, LZ, YU, I, Z31 during a two hour opening.

27/5: Many European signals this morning, some rare grids. PM: Hrd VE1YX wkg OK. Others were ER5DX, UX0FF, CT3FT, 5T5BN (10 W vertical), but the best was at 1654 with TR8CA at S9+ on SSB at 5,500 km (mixed mode? or ES?). OY9JD wkd ON on 144 MHz.

28/5: 50 MHz open from UK between 1850 and 2200 to VE, W1/3/8. Then USA had massive opening, special calls of interest were: VP9MZ, FP5EK, KL7NO, only FP was worked in the UK.

WA1OUB's report: Prefixes (countries = 17 + FP5) and (QSO totals) in Europe: 9H1(1), CT(2), DL(3), EH(7), EH8(1), EI(2), F(2), G(31), GD(2), GI(2), GM(4), GW(5), HB9(3), I(3), OE(1), ON(1), PA(5). Heard many stations but nothing new. QSO of the day was EH8BPX to N0LL at 7300 km approx! That would have been a nice starter for the DX Challenge! Pity its not June!

VS6/VR2 Callsigns

Via the Internet, courtesy of **John VK4FNQ,** Charlie VS6XMT explains: *Thank you for your concern about our prefix matter. In fact, the Office of the Telecommunication Authority (OFTA) started to issue new call prefix (VR2) from 1993 when we renewed our licences. The early change can spread the administrative loading during the calendar year 1996 and avoid the possibility of using a VS6 call after 30 June 1997 due to human error. However, most of us are not happy about the sudden change of callsigns and requested we be permitted to use the VS6 and VR2 series of callsigns until June 1997, and it was accepted by the Authority.*

We also agreed to use one call sign only in any single transmission in order to avoid confusion. Perhaps you can hear one station in Hong Kong using VS6 in QSO with A, and later he may use VR2 to QSO with B.

When we put the beacon back on air, we (HARTS) decided to change the call prefix from VS6SIX to VR2SIX so that it can smoothly migrate to 1997. I hope the above will alleviate your concern and look forward to meeting you on the magic band. 73 Charlie VS6XMT or VR2XMT after 30 June 1997.

From John VK4FNQ: *We spent the June long weekend at a very wet Mission Beach*

where the Townsville Amateur Radio Club, Cairns Amateur Radio Club and Tablelands Electronic and Radio Club have their annual get-together.

Some winter Es around. On 10/6: 0620 heard Joe VK4JH working VK2FLI 50.120; 0647 I worked John VK2BHO 50.140 5x5 with very heavy QSB, 0658 VK2BRG 5x9, 0717 VK2RGG/b 50.058 5x2, 0725 heard VK4JH on 50.120 working VK2BRG and VK4KGP. Band closed 0750.

Meteor Showers

Data given for the maxima of the showers, the accuracy +/- 12 hours. Only showers with a rate above 25 shown. The showers last a couple of days. Data kindly provided by **OZ1FNX** and *The Observers Companion.* Perseids: August 12, meteor rate 95, peak around 0930. Geminids: December 13, meteor rate 90, peak around 1900.

Repeaters

Thanks to a new correspondent, **Andrew Miller VK5DL,** who reports that during a stay at his holiday house at Hampden near Eudunda, 120 km north east of Adelaide, on 25/26 May he was surprised to find many repeaters available. He could only use his 50 watts from the Kenwood TM-221A and a 12 element K1FO at 6 metres – no SSB at the time – and worked Mark VK2MGO via VK2RRT Boona Mount, Jack VK1JA, Mike VK1FX and Barry VK5KCX via VK1RGI Mt Ginini, Brian VK2DPG via VK2RBH Broken Hill, John VK5PO, John VK5NFJ and Barry VK5KCX via VK3RWZ Mt William.

The next morning (26/5), the following repeaters were heard. VK1RGI, VK1RTD, VK2RAO, VK2RBH, VK2RCC, VK2RCH, VK2RGF, VK2RRT, VK2RWG, VK2RWM, VK3RBA, VK3RCV, VK3RGV, VK3RLV, VK3RMA, VK3RMM, VK3RNE, VK3RSB, VK3RSH, VK3RVL and VK3RWZ. He contacted Sid VK2SW via VK2RWM at Grenfell.

That's an imposing list of 21 repeaters. Andrew commented that there seemed little activity despite the band being open over an extended area, and suggests the temporary absence of the VK5VF two metre beacon may have been a contributing factor. The most unusual part of the event was being able to access VK1RGI using his HT with a 1/4 wave antenna!

Reunion Island

Don VK6HK sent a fax with the following information: *On 16/6 during a QSO on 14 MHz with Philipe FR5DN on Reunion Island, he advised that Yvon FR1GZ had reported hearing a signal on 144.560 on 30/5 at 1000 for "two to three minutes" and again on 4/6 at 1331.*

The west facing beacon VK6RBU at Bunbury operates on 144.560 MHz and when the keying cycle of the beacon was played to FR5DN and FR1GZ on 14 MHz, Yvon confirmed that "that was the signal heard". The existence of VK6RBU had been advised to FR5DN by Bill VK6ACY, who is closely involved with the VK6RBU project.

Yvon has a nine element Yagi for two metres with a preamp. He is favourably located on the eastern side of Reunion Island. FR5DN has an EME standard station on 144 MHz with 400 watts to a 4 x 17 element array, but is screened to the east by a 2400 metre volcano.

The distance involved is of the order of 6000 km, a potential world record distance for two-way tropospheric communication on two metres, if that can be achieved one can only be cautiously optimistic! Contact with FR5DN will be maintained by HF, fax and the Internet. It is expected that there will be increased attention to the path in the Spring and Autumn of 1996/7.

One would hope that, in the event of a further hearing, a tape recording will be taken so that a more positive identification can be made of the signal.

Darwin Repeaters

Rex VK8RH advises that two new repeaters are operating from Darwin with the callsign VK8RDX on 53.925 with 120 watts and 29.680 MHz with 75 watts. On 6 m operation is 123 Hz CTCSS and on 10 m carrier squelch or DTMF.

Rex also mentioned that the YB0 beacon from Jakarta in Indonesia is now on 50.043 MHz running 15 watts to an omni-directional antenna. YB0UCO is its keeper.

News from the UK

Ted Collins G4UPS writes for May: *I have recently scoured my logs for the details of the openings on six metres across the "pond" from 1983. The earliest ever opening as far as the UK is concerned was 1993, when the first opening of the Sporadic E season occurred on 5 June that year, with an opening to VE1ZZ and VE1ZDX.*

The only opening to occur without some prior warning, ie activity on 28.885 MHz or the VO1ZA beacon being heard prior to an opening, was 6 June 1988. I had an opening to SV at the time and was calling CQ on 50.110 when my calls were answered, surprisingly at 1513 by WD4KPD for the first six metre opening across the pond for that year. All other openings in other years were preceded by some obvious indicator that the band was possibly going to open.

The first 1996 UK opening was to VE1YX on 28/5. Although VE1YX had worked into Europe on 27/5, his first UK contact was at 1845 with a QSO to myself with 5x9 signals both ways. At 1852 I worked WA1OUB 559/529 for what was possibly the first W/UK contact for the new season.

The Bulgarian beacon LZ1SIX on 50.083 grid JN47se heard for the first time on 27/5.

Ted hasn't allowed the grass to grow under his feet during May. His seven page report from his log indicates contacts with the following 46 countries: 4X6, 5B4, 5T5, 9A3, 9H1, CN8, CT, DL, EH1, EH8, ES5, EU6, F, G, GB6, GW, HA, HB9, I, IS0, JX7, LA, LY, OE, OH, OI, OK, ON, OY, OZ, PA, RV3, S51, SM, SP, SV, SV9, T98, VE, W, YL, YO, YT, YU, Z32, ZB. Not a bad effort for one month!

In addition, Ted copied the following 21 beacons: CT0WW, CU3URA, EA3VHF, ES0SIX, ES6SIX, GB3BUX, GB3NHQ, HV3SJ, LZ1SIX, OH1SIX, OZ7IGY, S55ZRS, SK3SIX, SR5SIX, SR6SIX, SV1SIX, SV9SIX, VE1PZ, VO1ZA, YU1SIX, ZD8VHF.

Reading the above does make one wonder whether six metres actually closes during their summer Es season. It adds strength to the oft quoted phrase, "Six metres never closes, only the operators cease!" For those who live in Australia, to be involved in openings on the scale enjoyed in the UK and Europe, is beyond our comprehension. If only the adjacent island nations of the Pacific region were of sufficient population to support regular six metre operations, we would have a further 50 countries available for contacts; the possibilities are there but, unfortunately, it is unlikely to happen.

Six Metre DXCC Leaders

Emil Pocock W3EP, in his *The World Above 50 MHz* in *QST* for July, lists the leaders on the 50 MHz DXCC Table. The list is compiled by JA1VOK.

156 JA4MBM	131 JR2HOG
151 JA1BK	131 SM7AED
150 PA0HIP	129 9H5EE
150 GJ4ICD	127 JA1PVI
150 PY5CC	127 G3KOX
143 SV1DH	127 ON4ANT
140 JE1BMJ	127 JA1RJU
140 G3WOS	126 W5FF
136 VE1YX	126 JA3EGE
135 JA1VOK	125 JI1DLZ
133 JA6RJK	125 JI2CCF
133 JR2HCB	125 JR2AUE
133 SM7FJE	125 K1TOL
132 G0JHC	125 ON4KST
131 WA1OUB	

Emil comments: *With 50 MHz operation documented from more than 250 of the current 326 DXCC countries, the competition to be alone at the top of the countries-worked list continues. Hatsuo Yoshida JA1VOK, editor of VHF-UHF DX*

Topics in the Japanese journal Mobil\Ham, has been keeping close tabs on the leaders. According to his compilation, published in April this year, 39 stations have worked at least 125 DXCC countries.

The leaders are listed in the table above. Thirteen of the above 29 are from Japan, tending to confirm their unique geographical position in that they are within range of many countries to the east, west and south of their country. They are also dedicated operators.

Closure

Closing with two thoughts for the month:

1. If you observe people long enough, you'll realize that the self-made ones have an abundance of working parts, and,

2. Agreement in principle is the politest form of disagreement.

73 from The Voice by the Lake.
**PO Box 169, Meningie SA 5264*
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Packet: VK5LP@VK5WI.#ADL.#SA.AUS.OC

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Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

T M	O'DONNELL MBE	VK2OD
V (Victor)	CHENNELL	VK5JH

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WIA News

WIA Talks with SMA Resolve Some Issues

The WIA's SMA Liaison Team met with the Spectrum Management Agency in Canberra on Friday, 28 June, for talks covering some 20 topics, resulting in the resolution of some outstanding issues and further progress on the rest.

The broad topics discussed included the WIA's proposal for expansion of the 80 metre DX window, various interference matters, technical licence specifications, the examination system and a variety of licensing issues.

The meeting was attended by WIA Federal President, Neil Penfold VK6NE, Dr David Wardlaw VK3ADW, and Roger Harrison VK2ZRH. Nine staff from the various relevant sections of the SMA attended, and the meeting was chaired by Fred Gengaroli, the manager of SMA Technical Services, Customer Services Group.

80 m DX Window Further work on the WIA's proposal to expand the 6 kHz window had been done since the draft was presented to the SMA at the previous WIA-SMA meeting on 30 November last year. This work addressed concerns expressed by the SMA last year about potential interference problems, and feedback from users of the 80 m DX window. In addition, the SMA requested further background on history and usage of the DX window.

Roger Harrison gave a presentation on the updated proposal, including results of a propagation study which showed that the interference potential between amateurs and primary licensees would be very low as it is not proposed to share the proposed expanded band during business hours. This study showed that the originally proposed time for usage by amateurs could be extended to 0830 hours local time, from 0700.

In summary, the updated 80 m DX window proposal submits that Australian amateurs be permitted to use an allocation of 3760-3900 kHz on a secondary basis, between the hours 1700-0830 local time Mondays to Thursdays, and from 1700 on Fridays through to 0830 on Mondays. In addition, the WIA proposes that Intermediate licensees get access to the expanded band and 3750-3760 kHz be permitted for amateur emergency service (WICEN) use during notified emergencies, with 3760 kHz lower sideband reserved for non-emergency nets and exercises.

Len Bray from the SMA gave a presentation which outlined the 3.5-4 MHz segment allocations in Region 3 and around the world, to put this part of the spectrum in context as to its world-wide usage. Mr Bray also provided details of usage of the 3750-3900 kHz band over some years and the trends in licensing in this sector.

As the Australian Radiofrequency Spectrum Plan is to be reviewed over coming months, with a view to publishing an updated version early next year, the next move for the WIA is to discuss the proposal at the Radiocommunications Consultative Council (RCC). David Wardlaw VK3ADW is the WIA's representative on the RCC.

Technical Licence Specifications Drafts of the Beacon and Repeater Technical Licence Specifications were sent to the WIA in June, shortly before the SMA meeting and the matter was discussed in Canberra. While several minor points were resolved, issues concerning the control of beacons and repeaters, and connection to the public telecommunications network, which have been the subject of discussion at previous WIA-SMA meetings, were again discussed at length.

The WIA proposes to seek permission for amateur stations (eg packet bulletin board system operators), as well as beacons and repeaters, to be connected to the public telecommunications network (PTN) for various purposes. This is not currently permitted. It is acknowledged, however, that the WIA considers there are "grey" areas, and packet radio "wormholes" to the Internet is one of them.

There is concern within the SMA that connection of stations to the PTN may lead to breaches of amateur licence conditions, for example, those regarding third party traffic regulations and access to the amateur bands by unauthorised persons. Control of the operation of beacons and repeaters via a telephone, or for uploading and downloading of data by the operators of these systems using a telephone connection, are areas which the WIA feels offers little or no risk, provided precautions relating to station control already in the regulations and General Licensing Conditions are observed. Likewise, with Internet packet radio wormholes there is room for discussing review of regulations in this area. These issues were discussed at length during the WIA-SMA meeting in June and the WIA has subsequently prepared and sent submissions to the SMA addressing the concerns and covering the technicalities of the issues in some detail.

In the meantime, the WIA does not condone "under the counter" station connection to the PTN on the basis that, if it's done proficiently, no one is likely to be any the wiser, and that the SMA is unlikely to take action. It should be noted that the SMA has taken action in recent times over breaches of operators' licence conditions on the 80 m DX window.

Call Signs Administration of amateur call signs, particularly the issuing of special event call signs, was discussed at length. A previous proposal by the SMA to charge $24 for issuing AX and VI prefix call signs has been withdrawn, pending further discussions. A submission to the SMA Liaison Team on special call signs from Steve Pall VK2PS provided the basis for discussion on the issue. Steve Pall's well-researched submission covered the salient aspects of special amateur call signs very cogently, well supported with many relevant local and international examples. The inclusion of previous departmental correspondence proved particularly useful.

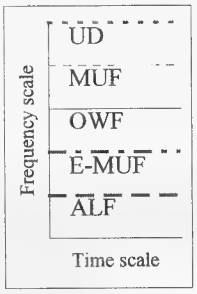
There is now greater understanding within the Canberra SMA on the call sign issue and the SMA has provided the WIA with additional information as to the issues which need to be addressed so that the situation may be improved. At the SMA's request, the WIA is now compiling a comprehensive submission covering all aspects of amateur call signs, with a view to the *Radiocommunications Assignment and Licensing Instructions*, AM2 and MS4, which affect amateur call signs, being reviewed and rewritten.

Further details on results of discussions with the SMA in June will be detailed in later *WIA News* releases.

HF Predictions

Evan Jarman VK3ANI

T Index: 9



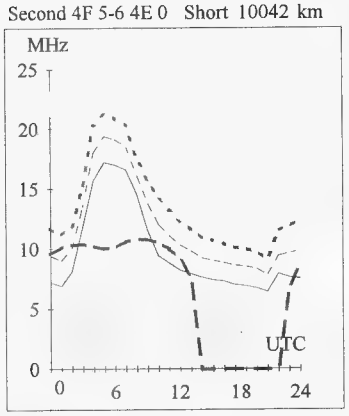
These graphs show the predicted diurnal variation in key frequencies for the nominated circuits. They also indicate a possibility of communication (percentage).

The frequencies identified in the legend are:-

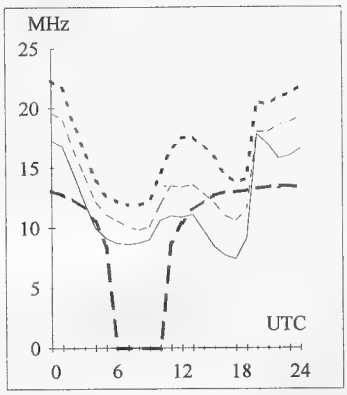
- Upper Decile (10%)
- Maximum Useable Frequency (50%)
- E layer MUF
- Optimum Working Frequency (90%)
- Absorption Limiting Frequency

The predictions were made by one of the Ionospheric Prediction Service Stand Alone Prediction Systems. The T index used is shown above the legend. The Australian terminal azimuth (degrees), path length (kilometres) and propagation modes are also given for each circuit. **ar**

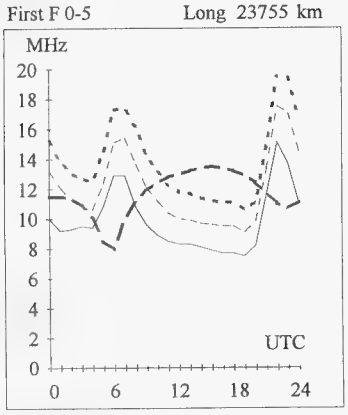
Adelaide-Johannesburg 237
Second 4F 5-6 4E 0 Short 10042 km



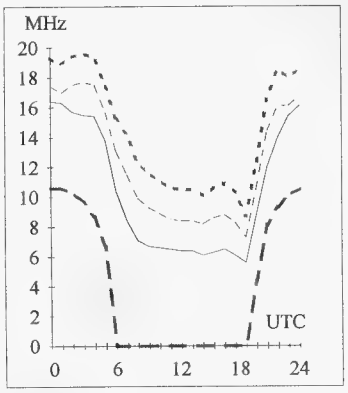
Brisbane-Boston 56
First F 0-5 Short 15722 km



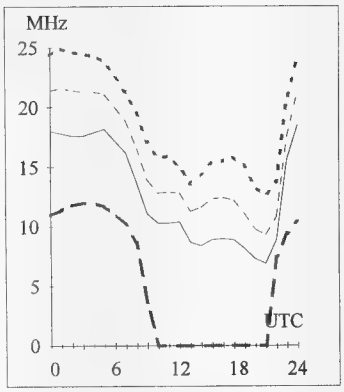
Adelaide-London 132
First F 0-5 Long 23755 km



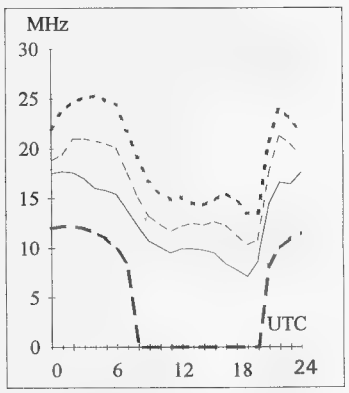
Brisbane-Christchurch 141
First 1F 5-8 1E 0 Short 2516 km



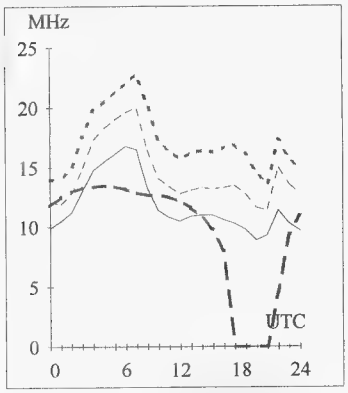
Canberra-Jakarta 297
First 2F 3-5 2E 0 Short 5398 km



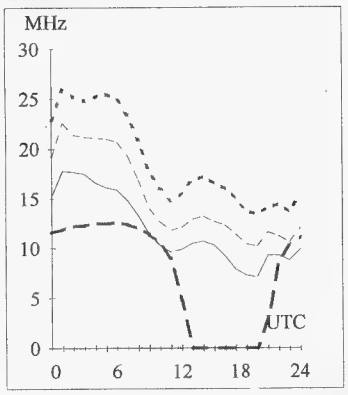
Darwin-Bangkok 310
First 2F 7-14 2E 0 Short 4435 km



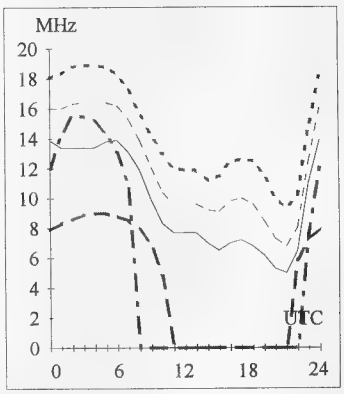
Adelaide-London 312
First F 0-5 Short 16268 km



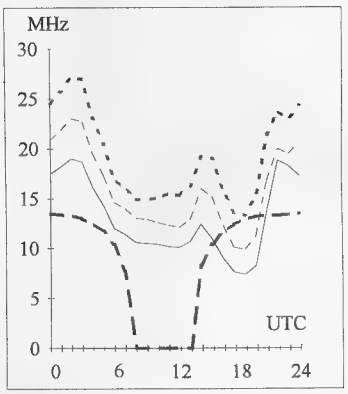
Brisbane-Karachi 294
Second 4F 3-8 4E 0 Short 10885 km



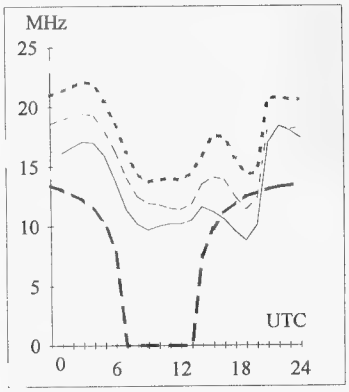
Canberra-Jakarta 297
Second 3F10-13 3E6 Short 5398 km



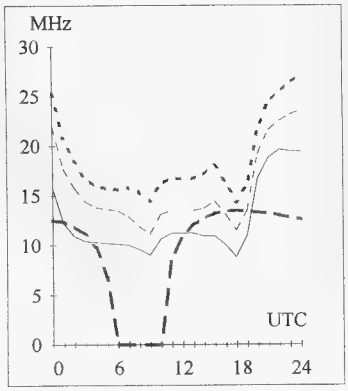
Darwin-Los Angeles 58
First F 0-5 Short 12693 km



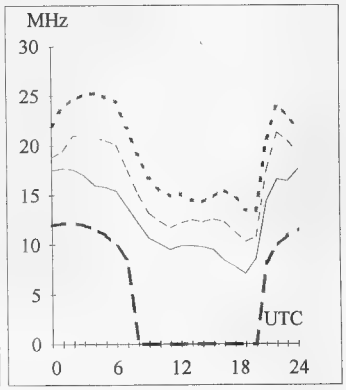
Adelaide-Vancouver 49
First F 0-5 Short 13421 km



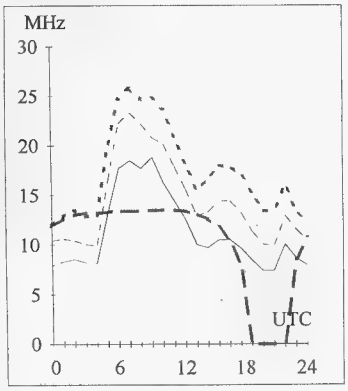
Brisbane-West Indies 93
First F 0-5 Short 15339 km



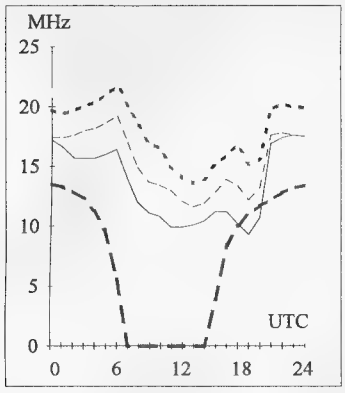
Canberra-Tokyo 352
Second 3F 4-8 3E 0 Short 7498 km



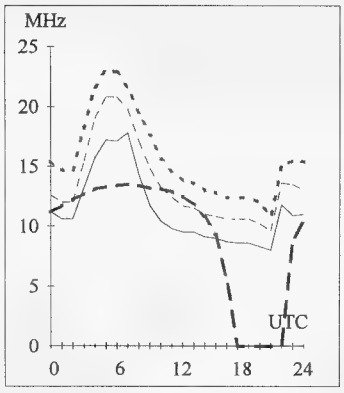
Darwin-Dakar 278
First F 0-5 Short 16578 km



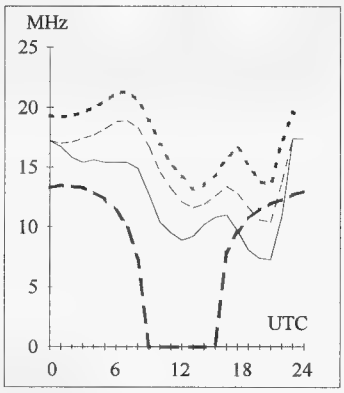
Hobart-Alaska 24
First F 0-5 Short 13052 km



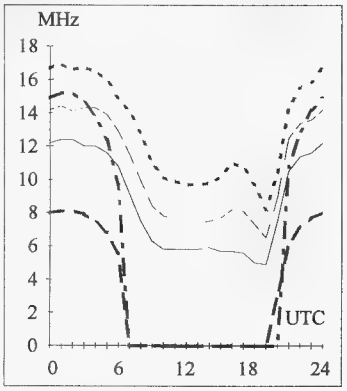
Melbourne-Athens 289
First F 0-5 Short 14949 km



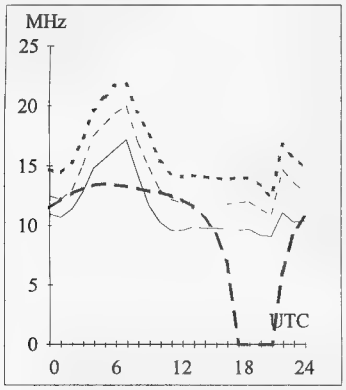
Perth-Anchorage 34
First F 0-5 Short 13298 km



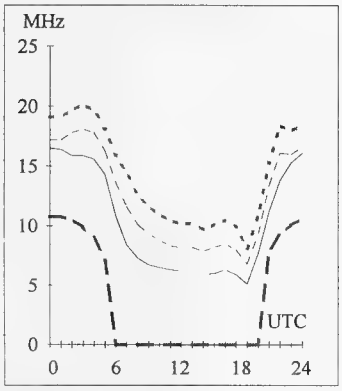
Sydney-Norfolk Island 76
First 1F 11-16 1E 8 Short 1679 km



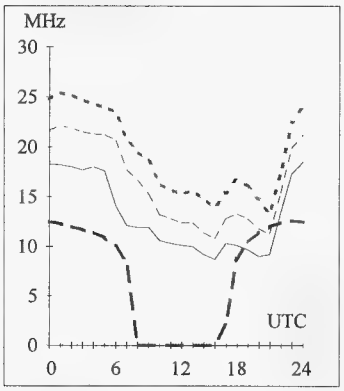
Hobart-Brussells 301
First F 0-5 Short 17099 km



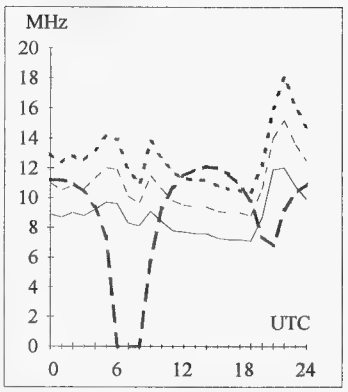
Melbourne-Auckland 97
First 1F 4-7 1E 0 Short 2622 km



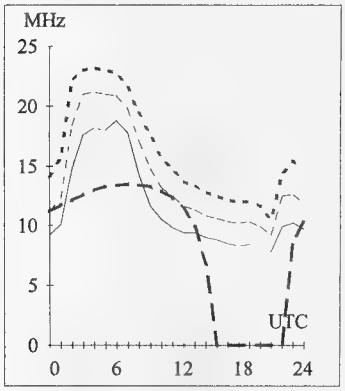
Perth-Honolulu 70
Second 3F 4-7 3E 0 Short 10906 km



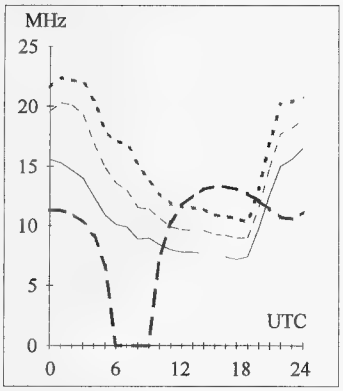
Sydney-Rio de Janeiro 164
First F 0-5 Short 13519 km



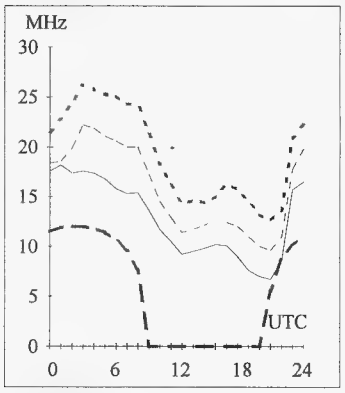
Hobart-Tel Aviv 282
First F 0-5 Short 14102 km



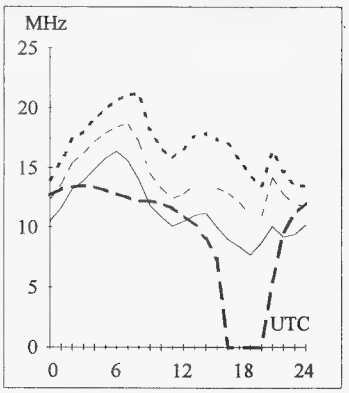
Melbourne-Trinidad 132
First F 0-5 Short 16033 km



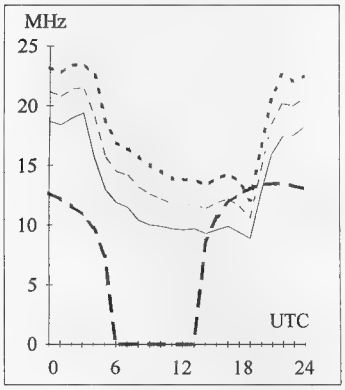
Perth-Osaka 17
Second 3F 4-9 3E 0 Short 7685 km



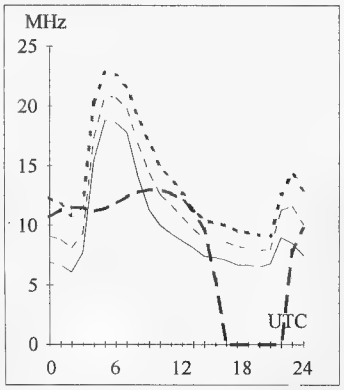
Sydney-Stockholm 324
First F 0-5 Short 15593 km



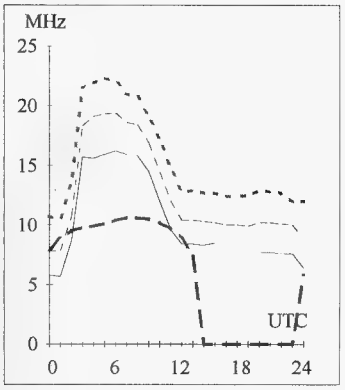
Hobart-Los Angeles 66
First F 0-5 Short 12820 km



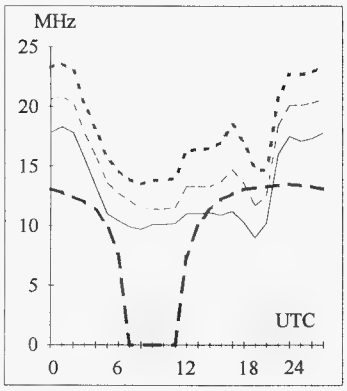
Melbourne-Kinshasa 240
First F 0-5 Short 13029 km



Perth-Nairobi 275
Second 4F 7-10 4E 0 Short 8899 km



Sydney-Washington 68
First F 0-5 Short 15712 km



HAMADS

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Internet address rhg@ozemail.com.au.

FOR SALE NSW

Hewlett Packard noise sources models S347A 2.6-3.95, X 347A 8.2-12.4, 349A 0.4-4GHz, $125 each; **Coupler G752D** 3.95-5.85 GHz, 20 dB, $145. Peter VK2CPK QTHR.

Yaesu FT7 Tx, PN8J.100161, $400 ono. **ATU** homebrew, $50. Box of cables, fittings, several publications. Offers, Deceased Estate Harry Capsey. Licd amats only. H Chapman (02) 644 1929.

Yaesu FT101E HF transceiver, AC/DC leads, manual, GC, $475. John VK2AKQ (02) 543 5374.

Icom 761 HF all band/mode transceiver, general coverage receiver. Advanced in-built antenna tuner. VOX operation, voice synthesiser option, all advanced functions and controls, set hardly used, s/n 03143, $2,500 ono. **Hy-gain 10-15 meter duo-band 3E beam antenna,** inst manual, very good condition, cost $450 sell, $150. Mark VK2KFI (042) 72 4760 or (0412) 42 4760.

Free **Commodore computer**. For sale: **FT-One, FT-901DM, TR-7400A, PCS-300,** 2 CB Tx, **TL-922 & FL-2100B** linears, **TH6DXX** ant, two 32 ft lattice masts, 5- band ground plane, CB ground plane, two pr tubes **(CV2245 & 572B)** still in cartons, 6 ft steel equipment rack 19" panels, **Heathkit CRO, Datong FL2** filter for CW & SSB, brand new rotator. For offers & info, Gordon VK2DGS (02) 416 1329.

Shack Clearance **Yaesu FT757GXII, Yaesu FC700** coupler, Yaesu FP757GX power supply, complete system. Will sell for $1,800. Will separate. **Emtronics 1MV3** vertical. 3 band dipole antenna free to good home. Also AR magazines back to 1990. Harry VK2MJH QTHR (02) 498 1170.

Deceased Estate of Bob Welsh VK2ERP. **Icom 735** HF txcvr, s/n 07856, $1,000; **Icom 271H** 2 m all mode, s/n 03953, $950; **Icom 471H** 70 cm all mode, s/n 01510, $950; **Yaesu FT227RB** 2 m FM, s/n 9L080138, $160; **Yaesu MMB16**, $30; **VK Power Master** 13.8 V supply, $150; **KR-400** rotator and **KR-500** elevator, $800, will separate; **WELZ SP-220** SWR meter, $100; Heavy duty spring base, $50. Prices negotiable. Randall VK2EFA QTHR (080) 87 5285.

HL-120-U 100 W out 435 MHz Tokyo High Power Labs Inc, s/n 4060 098, orig carton, manual, $435, heavy, please pick up; **PS-430** 13 V, 20 A power supply, GASFET pre-amp Rx, Kenwood, s/n 5020 696, manual, original carton, $350. H Ruckert VK2AOU QTHR.

TH3 Jnr with balun, $100. Geoff VK2EKP (02) 310 4294.

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Kenwood TS680S, PS50, ATU230, MC60, IC02A, multi-band vertical Coman-tenna, good condition, cartons, manuals, $1,000 the lot. Rod VK2BRW QTHR (075) 524 3722.

AST premium 286 10 MHz PC/AT, 3.5" & 5.25" diskette drives, 70 Mb hard disk, EGA card, serial & parallel ports. Well-built reliable machine, one owner, original manuals & AST DOS, $250; Scanner **PRO 2022** 210 channel desktop/mobile, mains & 12 V, in original packing, as new, cost $550, sell $275. Brad VK2KQH day (02) 9906 5855 otherwise (018) 64 0377.

Oscilloscope Trio CS-1560AII, two channel, 15 MHz, in excellent condition with manual, $425. John VK2ATU (02) 792 2275.

FOR SALE VIC

Three plug in boxes, Tektronix CRO, condition unknown, free. Dual time base, 5A2ON differential amp, input box. Allen VK3SM (03) 9386 4406.

Kenwood TS520S HF tcvr, mic, manual, $400; **Kenwood TR-7730** 2 m FM tcvr, mic, manual, $140; **Yaesu FT223** 2 m 22 channel mobile FM tcvr, mic, manual, $75; **MFJ-207** HF SWR analyser, manual, $90; **Digitor** HF-VHF frequency counter, $40; **Icom IC-502** 50 MHz SSB portable tcvr, mic, manual, $130. Robin VK3TNW (03) 9729 1139.

Nally Tower 12.2 m wind up tower, engineering calcs available, $600. David VK3DJT (03) 9898 0031.

Yaesu FC102 1.2 kW ATU, gc/gwo, $350. Damien VK3CD (054) 27 3121.

FOR SALE QLD

FT101E, $350; **Telescopic tower** 75 ft+, $600; **2 m beam**, $25; **833A** and connectors, $70; 7/8" earth strap, $2 metre; 4000 valves, miniature, octal, vintage. Catalogue 0.85c. Hadgraft, 17 Paxton St, Holland Park QLD 4121 (07) 3397 3751 AH.

Kenwood TS830S transceiver, s/n 2042155, with spare finals; **AT230** ATU, **SP230** speaker, manuals and accessories, all in top order in original packaging, $1,600 plus freight and insurance. VK4BNR QTHR (07) 3408 3154.

Valves for Amateurs and Restorers. Johnson square ceramic sockets, HF, VHF variable condensers, high voltage power supply components, all valves tested, some unused. Send SASE for lists. Ted VK4YG QTHR Box 245, Ravenshoe Qld 4872 (070) 97 6387.

Kenwood TS430S tcvr, HF incl WARC, CW/AM filters, workshop manual, $850; **TH3** Yagi, 20/15/10, $180. Warwick VK4NW QTHR (071) 59 2007.

Computer grade **high voltage electros** 2500 ÊF 400 volts working, $5 each; **Collins 500 kHz mechanical filters,** USB and LSB, $25 the pair. John VK4KK QTHR (07) 3269 6647.

2 m FM mobile, **Phillips FM92**, 25 watt, 99 repeater, packet, simplex & special channels, 2 scan groups, sub-audible tone encoder. C/w mtg brackets & remote control head/speaker & mic, good working condition, $190; **3 Band Dipole** ("Spider" construction), separate elements for 40 & 30 metres, C/w balun, 10 m RG58 coax & spare elements for another band, centre hub for single pole mounting, $80; **Stepped Attenuators Hewlett Packard HP355C**, 0 to 12 dB in 1 dB steps, 0.5 watt, 50 ohm, DC to 1 GHz, also RLC electronics model AT200-SR similar to HP355C, $90 each. Gary VK4AR QTHR (07) 3353 1695.

Kenwood TS120S, mobile mnt, handbook, 100 W HF, s/n 950833, $450; **Kenwood AT120**, $100; **Chirnside whips** 80, 40, 20, 15, 10, $20 each; **National RJ3150** 28 MHz 9 channels AM, $30; **Sharp** 18 channel 28 MHz SSB/AM, $30. Roger VK4CD QTHR (077) 74 0221.

FOR SALE SA

Phillips FM900 series commercial rig converted to 2 metres, 9 channels, 25 W, can be programmed for any frequencies in 2 metre band, $120 ono. Rob VK5CS (085) 68 5411.

Log periodic (8EL), RF connectors, microphones, new mic cords, antenna bases, CRO probes, 10-11 m 5 element beam, telephones, 2x100 watt baluns, Vectronics ATU 1.8-30 MHz 300 watts, top shelf ATU, from $1.00. Paul VK5MAP QTHR (086) 51 2398.

FOR SALE WA

Collectors item **Heathkit tube checker MOD TC-1** with cables and manual, $120. VK6QB (097) 52 2651.

FOR SALE TAS

Kenwood service manual, suit TS850, $30; **Icom FL102** AM filter, suit IC760, IC761, IC765, IC575, $60; **Yaesu FL2050** 2 metre linear, 70 watts output, $150. All as new, inc boxes. Allen VK7AN (003) 27 1171.

WANTED NSW

Mecrograph or The McDonald Pendograph or any unusual Australian keys or bugs. Pay top dollar for any of the above. Steve VK2SPS (02) 9999 2933 after 6pm.

External VFO for FT301, must be in good condition. Ray VK2AWQ QTHR (064) 94 1347.

AWA 11" B/W TV set, model P1P working or not, will pick up. David VK2COF (02) 498 2622.

WANTED VIC

PCB for Dick Smith 2 meter linear amp kit K6313 PCBZA1661, or kit not working; also kit or complete 70 cm linear, 23 cm linear, valve equipment also considered. Faulty or cheap Ham ? Rotator, all items to suit budget. David VK3XLD (03) 9306 3739.

WANTED QLD

Daiwa rotator control unit CR-4, DC-7055, DC-7011 or similar (faulty or working) to use with Daiwa MR-750 rotor; **Remote control heads** for AWA RT85 & Phillips FM900 series transceivers. Gary VK4AR QTHR (07) 3353 1695.

Heathkit 6 m amplifier, Heathkit 2 m all-mode transceiver, Heathkit **SB200** amplifier, Heathkit **VHF SWR-power meter**, Heathkit **HF SWR-power meter**, Heathkit rotary **coax switch**, Heathkit **HW16, HW101, DX40, DX60** transmitters/transceiver for operational Heathkit Museum. Contact "Doc" VK4CMY PO Box 24, Dalveen Qld 4374 or phone (076) 85 2167 before 8pm please. Vietnam Veterans Wireless Group.

Geloso AM HF transmitter, power supply WWII army set No. 11, handbook No. 11, will pay your price. Ray VK4FH (07) 3299 3689.

WANTED SA

Volt meter 0-20 V, 70 mm x 70 mm, must be in good condition and good working order. "Somebody must have one to sell". Paul VK5MAP QTHR (086) 51 2398.

Yaesu YO-901 multiscope monitor. Ivan VK5QV QTHR (087) 25 5514.

Digital counter card PB2086A containing 40 leg chip Yaesu 5920-0741 for FT101ZD with s/n's above (XX) 16001. Also operating details, circuits etc for Philips CRO GM5659, Osc. GM2875, Philoscope TA160. Will pay reasonable copying costs, postage. Gordon Welsh VK5KGS, Box 152, Stansbury SA 5582.

WANTED WA

B-MAC C to Ku band satellite receiver in working order. Trevor VK6ZTJ QTHR (098) 25 1008 evenings or fax (098) 25 1240.

Sell or Swap 54 feet triangular lattice antenna, climbable. Consists 2 x 15' x 12" (30 cm) and 4 x 6' x 9" (22 cm) lengths. Want 1 or 2 lengths 6 m x 6" (15 cm) Hills TV antenna masting and 6 m x 2" (50 mm) ID galv pipe. Beau VK6COP QTHR (09) 457 8179.

MISCELLANEOUS

• THE WIA QSL Collection (now Federal) requires QSLs. All types welcome especially rare DX pictorial cards special issue. Please contact Hon Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350.

• DO YOU HAVE ANY used telephone cards or stamps lying around? If so could you please send them to the Epilepsy Association of South Australia Inc, PO Box 12, Woodville SA 5011. **ar**

WIA MORSE PRACTICE TRANSMISSIONS

VK2BWI	Nightly at 2000 local on 3550 kHz
VK2RCW	Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm
VK3COD	Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz
VK3RCW	Continuous on 144.975 MHz, 5 wpm, 10 wpm
VK4WIT	Monday at 0930 UTC on 3535 kHz
VK4WCH	Wednesday at 1000 UTC on 3535 kHz
VK4AV	Thursday at 0930 UTC on 3535 kHz
VK4WIS	Sunday at 0930 UTC on 3535 kHz
VK5AWI	Nightly at 2030 local on 3550 kHz
VK5RCW	Continuous on 144.975 MHz, 5 wpm to 12 wpm
VK6RCW	Continuous on 147.375 MHz, 4 wpm to 11 wpm
VK6WIA	Nightly at 1930 local on 146.700 MHz and nightly (except Saturday) at 1200 UTC on 3.555 MHz

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details: eg Name, Address, Telephone Number (and STD code), on both form. Please print copy for your Hamad as clearly as possible.
* Eight lines per issue free to all WIA members, ninth line for name and address Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.
* Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.
* Copy typed or in block letters to PO Box 2175, Caulfield Junction, Vic 3161, by the deadlines as indicated on page 1 of each issue.
* QTHR means address is correct as set out in the WIA current Call Book.
* WIA policy recommends that Hamads include the serial numb,er of all equipment offered for sale.
* Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
Conditions for commercial advertising are as follows: $25.00 for four lines, plus $2.25 per line (or part thereof) Minimum charge – $25.00 pre-payable.

State: .....

Not for publication: ❑ Miscellaneous ❑ For Sale ❑ Wanted

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WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

	Division Address	Officers			Weekly News Broadcasts		1996 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Secretary Treasurer	Philip Rayner John Woolner Bernie Kobier	VK1PJ VK1ZAO VK1KIP	3.570 MHz LSB, 146.950 MHz FM each Sunday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet aus.radio.amateur.misc newsgroup, and on the VK1 Home Page http://email.nla.gov.au/~cmakin/wiaact.html	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124 Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Secretary Treasurer (Office hours Web:http://sydney.dialix.ozau/~wiansw e-mail address: wiansw@sydney.dialix.oz.au	Michael Corbin Eric Fossey Eric Van De Weyer Mon-Sat 11.00-14.00 Mon 1900-2100)	VK2YC VK2EFY VK2KUR	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.	(F) (G) (S) (X)	$66.75 $53.40 $38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 9885 9261 Fax (03) 9885 9298	President Secretary Treasurer (Office hours Tue & Thur 0830-1530)	Jim Linton Barry Wilton Rob Hailey	VK3PC VK3XV VK3NC	VK3BWI broadcasts on the 1st and 3rd Sunday of the month, starts 10.30 am. Primary frequencies 1.840 AM, 3.615 LSB, 7.085 LSB, and FM(R)s 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH and VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Secretary Treasurer	Geoff Sanders John Stevens John Presotto	VK4KEL VK4AFS VK4WX	1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 28.400 MHz SSB, 29.220 MHz FM, 52.525 MHz FM, 146.700 MHz FM, 147.000 MHz FM, 438.525 MHz (Brisbane only), regional VHF/UHF repeaters at 0900 hrs Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM, regional VHF/UHF repeaters at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 8352 3428 Fax (08) 8264 0463	President Secretary Treasurer Web: http://www.vk5wia.ampr.org/	Peter Watts Maurie Hooper Charles McEachern	VK5ZFW VK5EA VK5KDK	1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHZ FM Adelaide, 1930 hrs Monday.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 351 8873	President Secretary Treasurer	Cliff Bastin Christine Bastin Bruce Hedland-Thomas	VK6LZ VK6ZLZ VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busselton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday, relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) (G) (S) (X)	$60.75 $48.60 $32.75
VK7	Tasmanian Division 5 Helm Street Newstead TAS 7250 Phone (003) 44 2324	President Secretary Treasurer	Andrew Dixon Robin Harwood Terry Ives	VK7GL VK7RH VK7ZTI	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).						

Note: All times are local. All frequencies MHz.

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VICTORIAN CONSUMER AFFAIRS ACT

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FT-900 Deluxe HF Mobile

The Yaesu FT-900 is a revolutionary new 100W HF transceiver that answers the need for a truly practical mobile radio, but without the performance compromises of most micro-sized rigs when used in base station installations.

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In base station uses, the FT-900's performance really shines through. Its superb front-end uses extensive bandpass filters, selectable dual FET pre-amp, and a quad-FET mixer to minimise overloads, while a Collins SSB mechanical filter provides the excellent skirt selectivity required for the crowded bands we'll see again as the solar cycle improves. For pure local signals and ease of tuning, two Direct Digital Synthesisers and a magnetic rotary encoder provide selectable 2.5, 5, or 10Hz tuning steps, while a 10 button keypad provides direct frequency or band entry. Interference fighting facilities include IF Shift, IF Notch, and an effective Noise blanker.

Other features include SSB/CW/AM/FM operation, 100 memory channels, 2 VFOs per band, SSB Speech processor with IF shift for audio tailoring, VOX, electronic CW keyer, CTCSS tones for 29MHz FM, and a general coverage receiver (100kHz to 30MHz).

The FT-900 is only 238 x 93 x 253mm (WHD), weighs just 5.5kg, and is supplied with a hand microphone, DC power cable, and detailed Instructions.

Cat D-3280

$1995

2 YEAR WARRANTY

B 2414

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